3 1761 08154273 0

UNIV. OF
TORONTO
LIBRARY

BINDING LIST JUL 2 1924

# THE SCOTTISH GEOGRAPHICAL MAGAZINE

*Authors are alone responsible for their respective statements*

# THE SCOTTISH GEOGRAPHICAL MAGAZINE

PUBLISHED BY THE ROYAL SCOTTISH GEOGRAPHICAL SOCIETY
JOHN HORNE, LL.D., F.R.S., HON. EDITOR
MARION I. NEWBIGIN, D.Sc., ACTING EDITOR

VOLUME XXXVI: 1920

190487
5.8.24

EDINBURGH
PRINTED BY T. AND A. CONSTABLE, PRINTERS TO HIS MAJESTY
AT THE UNIVERSITY PRESS
1920

IV

G
7
S43
v. 36-37

# ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.

## PATRON.

HIS MAJESTY THE KING.

### COUNCIL

(*Elected 11th November* 1920.)

**President.**

THE HON. LORD SALVESEN.

**Vice-Presidents.**

His Grace the DUKE OF HAMILTON.
His Grace the DUKE OF MONTROSE, K.T.
His Grace the DUKE OF BUCCLEUCH AND QUEENSBERRY, K.T.
The Most Hon. the MARQUIS OF ABERDEEN, K.T., G.C.M.G., G.C.V.O., LL.D.
The Right Hon. the EARL OF ROSEBERY AND MIDLOTHIAN, K.G., K.T., D.C.L., LL.D., F.R.S.
The Right Hon. LORD SALTOUN.
The Right Hon. LORD SEMPILL.
The Right Hon. LORD BALFOUR OF BURLEIGH, K.T., G.C.M.G., G.C.V.O., LL.D.
The Right Hon. LORD ELPHINSTONE.
The Right Hon. LORD REAY, G.C.S.I., G.C.I.E., D.C.L., LL.D.
Brig.-Gen. the Right Hon. LORD PLAYFAIR, C.V.O.
The Right Hon. LORD STRATHCLYDE, G.B.E., LL.D.
PAUL ROTTENBURG, LL.D.
ROBERT S. ALLAN, LL.D.
JOHN HORNE, LL.D., F.R.S.
SIR J. ALFRED EWING, K.C.B., LL.D.
COLONEL SIR DUNCAN A. JOHNSTON, R.E., K.C.M.G., C.B.
PROFESSOR J. W. GREGORY, F.R.S.

**Chairman of Council.**

H. M. CADELL, B.Sc.

**Chairmen of Centres.**

*Glasgow* . A. ERNEST MAYLARD, M.B., B.S., F.R.S.E.
*Vice-Chairman.*—F. L. M. MOIR.

*Dundee* . J. C. BUIST.

*Aberdeen* The Very Rev. SIR G. ADAM SMITH, D.D., LL.D., *Principal of Aberdeen University.*

**Ordinary Members of Council.**

JAMES MACDONALD, W.S.
W. B. WILSON, W.S.
PROFESSOR J. Y. SIMPSON, D.Sc., F.R.S.E.
W. B. BLAIKIE, LL.D., F.R.S.E.
PROFESSOR T. HUDSON BEARE, B.A., B.Sc.
W. G. BURN-MURDOCH, J.P.
W. L. CALDERWOOD, F.R.S.E.
HARRY R. G. INGLIS, F.R.S.G.S.
PROFESSOR T. J. JEHU, M.A., M.D., F.R.S.E.
J. LEIPER GEMMILL, *Glasgow.*
WILLIAM MACKENZIE, *Dundee.*
JOHN CLARKE, *Aberdeen.*
MAJOR LIVINGSTONE BRUCE, M.C.
SIR WILLIAM C. DUNBAR, Bart., C.B.
ROBERT T. SKINNER, M.A., F.R.S.E.
PROF. J. ARTHUR THOMSON, M.A., LL.D., *Aberdeen.*
P. S. BROWN, J.P., *Dundee.*
JOHN MACFARLANE, M.A.
D. F. LOWE, M.A., LL.D.
T. S. MUIR, F.R.S.G.S.
COLONEL WARDLAW RAMSAY.
ANDREW WATT, M.A., F.R.S.E.
MAJOR-GENERAL P. C. DALMAHOY.
JOHN HARRISON, LL.D., O.B.E.
WM. G. BLACK, LL.D., *Glasgow.*
EBENEZER DUNCAN, M.D., *Glasgow.*
A. B. GILROY, *Dundee.*
MAJOR W. H. COLTMAN, *Aberdeen.*
JOHN HORNE, LL.D., F.R.S.
PROFESSOR F. M. CAIRD.
W. R. KERMACK, M.C.
WILLIAM COWAN.
PROFESSOR D. J. MEDLEY, *Glasgow.*
F. L. M. MOIR, *Glasgow.*
H. A. PATTULLO, *Dundee.*
COL. SIR DUNCAN A. JOHNSTON, R.E., K.C.M.G., C.B.

---

*Trustees*—SIR F. GRANT OGILVIE, K.C.B., LL.D.; J. D. MONRO; JAMES CORNWALL; and the Honorary Treasurer or Treasurers, *ex officio.*

*Honorary Treasurer*—JAMES CURRIE, M.A., LL.D., F.R.S.E., Edinburgh.

*Honorary Secretaries*—RALPH RICHARDSON, W.S., F.R.S.E.; CAPTAIN IAN BARTHOLOMEW, M.A., M.C.
*Glasgow:* JOHN W. GOURLAY, C.A. (Local Secretary and Treas.), 124 St. Vincent St.
*Dundee:* JAMES M'WALTER, 10 Reform Street.
*Aberdeen:* R. W. K. BAIN, Hon. F.R.S.G.S., 8 Union Terrace.

*Honorary Editor*—JOHN GUNN, D.Sc.

*Honorary Librarian*—JOHN GUNN, D.Sc.

*Honorary Map-Curator*—JOHN MATHIESON, F.R.S.G.S.

*Auditor*—P. C. ROBERTSON, C.A., M.A.

*Treasurer*—DAVID CALLENDER, C.A.

*Secretary*—GEORGE G. CHISHOLM, M.A., B.Sc.

*Editor*—MARION I. NEWBIGIN, D.Sc.

*Assistant Secretary*—GEORGE WALKER.

---

**SOCIETY'S HALL: SYNOD HALL, CASTLE TERRACE, EDINBURGH.**

**TELEPHONE 1720 CENTRAL.** **TELEGRAM: GEOGRAPHY, EDINBURGH.**

# ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.

## CONDITIONS AND PRIVILEGES OF MEMBERSHIP.

THE conditions of Ordinary Membership are:—Approval by the Council; the payment in the case of members in the Edinburgh district of an entrance fee of One Guinea; in the case of other members one of Half-a-Guinea; and the payment of the ordinary Annual Subscription or a composition for Life-Membership. The Annual Subscription is One Guinea, and is payable *in advance* at the commencement of each Session.

A Member may compound for Life-Membership by payment as follows, viz.:—When under ten years' standing, £20; when over ten and under twenty years' standing, £15; when over twenty and under 30 years' standing, £10; when over thirty years' standing, £5.

The Official Year, or Session, of the Society is from October 1st to September 30th. New Members are required to pay the Subscription for the Session in which they join the Society, at whatever period, and they are entitled to receive the ordinary publications of that Session. Resignations, to take effect, must be lodged with the Secretary *before* the commencement of a new Session.

The privileges of Ordinary Membership include admission (with one Guest) to the Ordinary Meetings of the Society, and the use of the Library and Map-Room. Non-resident Members may borrow books from the Library, but they must defray the cost of transit both ways. Each Member is entitled to receive, free by post, the *Scottish Geographical Magazine*, which is published quarterly by the Society.

TEACHER ASSOCIATE MEMBERSHIP.—With the object of helping to promote the teaching of Geography in Schools, "Teacher Associates" are admitted to certain privileges of the Society at a reduced Subscription of Half-a-Guinea. The privileges are limited to the use of the Society's Rooms, receipt of the magazine, the right to borrow *one volume* from the Library, and one ticket (not transferable and admitting only one) for the Society's meetings. Only professional teachers are eligible for election, and the applicants must state the name of the school at which they are engaged.

Branches of the Society have been established in Glasgow, Dundee, and Aberdeen, where periodical Meetings are held.

# CONTENTS.

## VOL. XXXVI: 1920.

### No. I.—JANUARY.


| | PAGE |
|---|---|
| Spitsbergen in 1919, | 1 |
| The Ethnic *versus* the Economic Frontiers of Poland. By M. A. Czaplicka, | 10 |
| The Lost Cities of Ceylon, | 16 |
| Statistical Analysis of a Geography Examination. By Wallace E. Whitehouse, M.Sc., L.C.P., | 21 |
| The Bournemouth Meeting of the British Association, | 29 |
| An Epic of the Antarctic | 39 |
| Proceedings of the Royal Scottish Geographical Society, | 44 |
| Geographical Notes, | 47 |

The "Edinburgh" Number—French Vital Statistics—The Future of Italy—Utilisation of the Rhone—Northern Mesopotamia—The Domesticated Ostrich—Mauritius—German South-West Africa—The Position of Wineland—Christmas Island—The Economic Factor in the War—The War and the World's Sugar Supply—Water-Power in France.

| | |
|---|---|
| New Books, | 59 |


(*With Illustrations and Graph.*)

### No. II.—APRIL.


| | |
|---|---|
| The International Rivers of Europe. By Professor L. W. Lyde, M.A., | 73 |
| Russian Central Asia. By Ella Christie, F.R.S.G.S., | 85 |
| Survey Work in Mesopotamia during the War. By Lieut-Col. G. A. Beazeley, R.E., | 94 |
| The Mastery of the Far East, | 107 |
| Recent Developments in Spitsbergen. By R. N. Rudmose Brown, D.Sc., | 111 |
| The "Mounth" Passes over the Grampians. By G. M. Fraser, Librarian, Public Library, Aberdeen, | 116 |
| Obituary—Rev. Robert Mackenzie, M.A., | 122 |
| Geographical Notes, | 123 |

Britain and Air Power—The Port of Strasburg—The Plebiscite Area of Upper Silesia—The Geography of Macedonia—Contrasts between the Algerian and Egyptian Sahara—New Frontiers in "German East Africa"—Ocean Currents and Floating Mines—General Korniloff as Geographer and Explorer—Royal Geographical Society's Awards—Scottish Minerals—Traffic through the Panama Canal—The Cape-to-Cairo Railway and Train Ferries.

| | |
|---|---|
| New Books, | 132 |


(*With Illustrations and Map.*)

## No. III.—JULY.

PAGE

Notes on the Cameroon Province (with Special Reference to the Bamenda Division). By Captain L. W. G. Malcolm, . . . 145

The Place-Names of Canada. By R. Douglas, M.A. (Edin.), Secretary Geographic Board of Canada, . . . . . 154

A Contrast in Chalk-Lands. By M. Aurousseau, B.Sc., Lecturer in Geology, University of Western Australia, . . . . . 158

Travel Memories. By Lieut.-Col. A. C. Yate, F.R.G.S., F.R.Hist.Soc., 161

The "Mounth" Passes over the Grampians. By G. M. Fraser, Librarian, Public Library, Aberdeen, . . . . . 169

Bartholomew's New Atlas. By R. N. Rudmose Brown, D.Sc., . . 180

Proceedings of the Royal Scottish Geographical Society, . . . 182

Obituary:—Dr. J. G. Bartholomew—The Hon. Lord Guthrie—Dr. George Smith, . . . . . 183

Geographical Notes, . . . . . 189

Danish Mythology—The Ruins on the Tigris near Samarra—The Future of Madagascar—The Rainfall of Kauai—The Utilisation of Tropical Forests—Cotton in International Trade and Politics—Camphor-growing in the West Indies.

Educational, . . . . . 194

New Books, . . . . . 195

Books Received, . . . . . 211

New Maps and Atlases, . . . . . 212

(*Route Map and Illustrations.*)

## No. IV.—OCTOBER.

The Reconstruction of Europe. By John M'Farlane, M.A., . . 217

Some Geographical Factors in the Northern Appalachian Coalfield. By P. W. Bryan, London School of Economics, . . . . 232

Primæval Astronomy in Scandinavia. By Gudmund Schütte, Ph.D., . 244

Baku and the Caspian. By Lieut.-Col. A. C. Yate, F.R.G.S., F.R.Hist.Soc. 254

Geographical Notes, . . . . . 264

Proposed Glasgow Number—A Study of Ben Nevis—Spitsbergen Treaty—The Eruption of Katla, Iceland—The Sleswig Plebiscite Area—The Dependencies of the Falkland Islands—New Expedition to Greenland—The Cardiff Meeting of the British Association.

New Books, . . . . . 269

New Maps and Atlases, . . . . . 287

(*Maps, Diagrams, and Illustrations.*)

INDEX, . . . . . 289

ANNUAL REPORT.

SUPPLEMENT.

# THE SCOTTISH GEOGRAPHICAL MAGAZINE.

## SPITSBERGEN IN 1919.[1]

*(With Illustrations.)*[2]

During the recent eventful years, and especially since the northern seas have again become safe, the Spitsbergen Archipelago has claimed increasing attention among its nearest neighbours on the European mainland. Before the war its mineral wealth had been partially explored, and Spitsbergen was a "place in the Sun" included, among many others, in the grand plan of Pan-German conquest. After the Kaiser's ambitious scheme of world dominion was frustrated, the only valid claimants to the ownership of this Arctic "No Man's Land" were Britain and Norway, and each had established sufficiently good grounds for asking the Peace Conference to decide in its favour.

The British had annexed Spitsbergen in the reign of James VI., more than three centuries before, to use it as a whaling and fishing base. But the annexation was not followed up by effective occupation, and the ownership was allowed to lapse. It was not till the end of the nineteenth and the beginning of the present century that British explorers began seriously to turn their attention to the industrial possibilities of the islands. And here it must be said that the British Government left the matter entirely to private enterprise, and never from first to last did anything to help us to add to the Empire what might have become a useful commercial territory—one whose resources we were in a position to develop satisfactorily.

Two British companies had, however, before the war partially

[1] *Spitsbergen.* By R. N. Rudmose Brown, D.Sc. London: Seeley, Service and Co. 1919.

[2] For the photographs from which the accompanying illustrations were made we are indebted to Mr. J. Mathieson. They form part of a collection taken by him during the Spitsbergen Expedition of last summer.—Ed. *S.G.M.*

explored and staked off estates covering more than one-seventh of the whole area. During the past summer, after the interregnum of the war, they resumed operations and had pegged off altogether some 6000 square miles or more before the part of the Peace Treaty had been framed which allocated Spitsbergen to Norway. The Northern Exploration Company of London began operations in 1908, and the Scottish Spitsbergen Syndicate of Edinburgh, founded by Dr. W. S. Bruce in 1909, had thus between them in the autumn of 1919 acquired claims covering about a quarter of the land surface of Spitsbergen, whose total area is some 25,000 square miles, or about that of Scotland.

The Norwegian Government, unlike our own, had at the same time encouraged and assisted surveys and explorations for years, and a Norwegian company had begun to work the coal on the Ice Fjord at Advent Bay. The Swedes also had done much in the way of survey and exploration under such distinguished geologists as Nathorst, De Geer, and Högbom. The Norwegians, while we were engaged in fighting, were busily occupied opening up the coal, and when the British explorers returned to their estates in 1919, the Norwegians had something substantial to show in the way of development of their own mining claims.

By virtue of extensive surveys, exploration and development of the part of Spitsbergen they had found of value, the Norwegians had, no doubt, established as good a claim to their estates as any one else. But for the war, British claim-holders would doubtless have been equally well employed, and the fact of non-occupation between 1914 and 1919 cannot, in the unusual circumstances, be held as having in any way invalidated the British titles to ownership, based on previous exploration and delimitation by conspicuous marks or boundary pegs. Norway has, however, naturally a strong geographical claim, as she is nearer by several hundred miles to Spitsbergen than any other country. She is therefore in the best position to trade successfully with the islands, and to develop their resources to the greatest advantage by means of hardy Norse labour accustomed to Arctic conditions of existence. Norway has, moreover, no coalfields of her own, and in all the circumstances is naturally entitled to her share, provided she can make good her claim.

There appear to be thus no good reasons to object to the recent allocation of Spitsbergen, provided, of course, that existing British rights, which are recognised by the Foreign Office, are not prejudiced, nor undue preference shown in the future to Norwegian trade interests. It must not be forgotten that it is to the British Navy that Norway must look for protection, the navy that during the war deprived the Germans of access, and prevented them from seizing the islands, as they had intended to do when victorious. Norway did not help to defeat the common foe, and is the only neutral that so far has gained considerable new territorial possessions without naval or military effort. She is therefore morally, if not legally, bound to be friendly to the Power that has suffered so greatly in the struggle, and has at the same time magnanimously waived any further claim to sovereignty over Spitsbergen.

In the early stages of development it was no doubt an attraction to explorers to know of a happy hunting ground to exploit—a rare and not too remote spot on the face of the habitable globe free from the inquisitorial tax-collector, and beyond the long arm of the law, the universal controller and the police hierarchy—a land of perfect freedom from the exactions of modern civilisation, without even a native population to cause social trouble or claim protection. But these primitive advantages were not without their drawbacks. Dr. Rudmose Brown, in the *Scottish Geographical Magazine* for June 1919, and in his recent book, has emphasised the need for some form of stable government that would establish an effective police system to protect the rights or safety of individuals and their property, and to enact game laws to protect the native animals from ruthless extermination by unsportsmanlike Scandinavian trappers and hunters. The islands to be satisfactorily settled needed some form of government, not by an international committee but by one free undivided authority, and since that authority has now been definitely established it will be for the sovereign State to show the world that it is worthy of the trust that has been conferred upon it.

No doubt Norway may now wish to have entire control of Spitsbergen and its industrial development. Besides British owners, there are some Swedish and a few small Russian claim-holders. The most prosperous mining estate, at Advent Bay, was originally owned and opened up by Americans and not by Norwegians at all, but in 1916 the Americans were bought out by the Norwegians, who since then would appear to have learned how to mine the coal themselves with satisfactory results. In the same way it might be to their advantage to buy out the other foreign owners, who hold many times as much territory as the Norwegians, and so avoid inconvenience and possible friction in having to deal with people of three other nationalities as tenants of their country. Norway has emerged from the turmoil with far less skaith than most of her neighbours, and should be one of the first countries to recover and reach a position to consolidate and unify her new dominion in the way suggested. Spitsbergen would be more likely to develop satisfactorily if the population spoke one tongue and recognised the system of laws to which they were accustomed at home, and probably the claims of foreigners could be acquired on better terms now before much development has been done than is likely to be the case in the near future. It is a great opportunity, and we on this side of the North Sea who have ample experience of colonisation, will watch the developments of the first Norwegian overseas dominion with much interest, and we may well wish the new owners all success and a long period of growing prosperity in their Arctic possessions.

Spitsbergen, like the north of Europe and America, was buried for ages under the polar ice-cap of the Glacial Period. Slowly but steadily the climate improved and the ice melted back. Part of Spitsbergen and all the North-East Land is still under the remains of the great ice sheet, but the western island, or Spitsbergen proper, is emerging, and there is abundant proof that the glaciers at the heads of the fjords once extended

much farther down towards the coast. In the north of America many of the Alaskan and Rocky Mountain glaciers are notably retreating, and some of the fjords that were full of ice a few years ago are now navigable arms of the sea. The magnificent Muir Glacier in Alaska, for example, between 1899 and 1911 retreated about eight miles, and when I visited it in 1913 it had retreated still farther. But the advance and retreat vary from year to year, and depend on local meteorological conditions, and in Spitsbergen no doubt also largely on the temperature of the adjacent ocean currents. The changes observable in a single lifetime may not be conspicuous, but it is satisfactory to reflect that on the whole the prospects of a farther retreat of the ice appear better than those of any notable advance. The life of a nation being far longer than that of a human being, the time may come when Norway will see more of the ground free from the grip of glaciers, and the area of the more habitable parts of Spitsbergen considerably extended.

The main or western island is washed by a relatively warm ocean current, which may be the north-eastern extremity of the Gulf Drift, penetrating at this point far into the Arctic Circle. But for this friendly flood the place would be as ice-locked and uninhabitable as Greenland. The land is penetrated by several arms of the sea, the most important of which is the Ice Fjord, which has various branches, and extends for over 55 miles inland to the head of Klaas Billen Bay, beyond the end of the great Nordenskjöld Glacier. It is along the shores of this grand inlet (see illustration, p. 8) that the principal mineral fields have been discovered.

The country is a plateau, more or less flat-topped, some 2000 to 3000 feet in height, but with the highest peaks rising to over 5000 feet. The edges are generally bounded by more or less abrupt precipices, which effectually hem in the valleys. But in recent geological times there has been a slight rise of the land, producing a level fringe of raised beach between the foot of the cliffs and the sea. This coastal terrace is of great importance from the industrial point of view, as it provides a means of access by land between one part of the coast and another. But for the fjords the uplands of the snowy interior would be practically inaccessible except to Alpine climbers. As the Ice Fjord is the largest inlet, and has both a better climate and more freedom from ice than most of the others, it will be in this district that the greatest industrial developments will naturally take place.

Dr. Rudmose Brown, who, with Dr. W. S. Bruce, has several times explored Spitsbergen, and has written numerous papers on his travels, has now published in book form an exceedingly useful account of the present condition and possibilities of the archipelago. His book appears at a time when accurate information is required, and as he writes in plain and popular language, and abstains from scientific phraseology, his treatise will appeal to the popular reader and the business man, and will provide the kind of useful information that is most wanted. The volume was written before the latest British expeditions of 1919 sailed, and before the final decision of the Peace Conference, to which allusion has already been made, and thus the most recent developments

and discoveries may modify some of the author's statements and expectations. But none the less it is a mine of valuable facts, with a practically up-to-date supply of material for the use of all who wish to know the character and possibilities of a most interesting region.

The archipelago was formerly considered of importance in connection with whaling and hunting only, but the whales have been largely slaughtered or driven away, and most of the once numerous reindeer and fur animals exterminated by the unsportmanlike methods of Russian and Norwegian hunters. The future of Spitsbergen now depends mainly on its hidden mineral wealth, and on its recently discovered coal-fields, and the development of these promises to be of far greater importance than the exploitation of either its furry or finny resources.

The geological structure of Spitsbergen is simple. So far as has been ascertained, the islands consist of great blocks of more or less flat or little disturbed rock, traversed by a series of large fault lines, most of which have general northerly and southerly trend. Some of the fjords appear to be so-called "rift valleys," with cliff walls due to upthrow lines of dislocation. They are not all due to river or ice erosion like the valleys in most other countries.

There are several distinct formations in which minerals have been found, and the geological structure is nearly as plain as that of the Grand Cañon in Colorado, where the flat-lying strata are graphically exposed in the imposing terraced walls of that stupendous chasm. The oldest rocks in Spitsbergen consist of crystalline Archæan gneiss, but this ancient foundation is only seen at a few places and is of no economic value. More important is the Hekla Hook formation, supposed to be of early Silurian age, which crops up in a highly contorted condition along the west coast and forms the backbone of Prince Charles Foreland and the conspicuous line of sharp peaks that have given Spitsbergen its descriptive name. Here, amid the glacier-clad mountains, magnetic iron ore and signs of other metallic minerals have been found, and future research may reveal more hidden wealth. The Hekla Hook rocks have been metamorphosed during the great earth-movements of a later date, and their upturned edges are covered by little-disturbed Devonian or Old Red Sandstone beds of no important economic value.

Next in order come the almost flat-lying rocks of Carboniferous age, in which coal of second-rate quality has been discovered in one or more seams round the head of the Ice Fjord. The coal strata are found at Klaas Billen Bay, and extend south of the Nordenskjoed Glacier for several miles. They here dip under a mountain plateau about 2000 feet in height, along whose sides immense beds of remarkably pure gypsum and fossiliferous limestone form the imposing walls of the valley at Temple Mountain and the part of Ice Fjord region to north of the Sassendal.

But the best coal in Spitsbergen does not occur in the Carboniferous but in the Tertiary formation, and the Norwegians have lately been mining the Tertiary coal at Advent Bay, on the south side of Ice Fjord, with considerable success. The output in 1918 is stated (p. 248) to be

60,000 tons, and is likely to be largely increased in 1919. The coal crops out along the face of the cliffs above sea level, and can be run straight down by aerial ropeway to the side of the fjord and tipped into ships at the local jetty with great ease. During recent seasons many miners with their families have lived at Longyear City—the chief mining camp—all the year round, in comparative comfort, although entirely cut off from the outside world for nearly eight months of Arctic darkness. We read (p. 236) that already half a dozen children claim to be natives of Spitsbergen, and that it would be a great mistake to picture this community as undergoing hardship in their Arctic home. A wireless station keeps them in touch with Europe, and in summer there is a regular mail service with Norway. Nearly all food has to be imported since reindeer have become scarce, but the climate makes cold storage easy, and does away with the necessity of living on tinned meat. There are as yet no noxious microbes in the pure air of Spitsbergen, and the doctor attached to the settlement appears to form part of the army of unemployed, except when occasional cases of scurvy arise among hunters too long deprived of vegetable diet. In fact, during the summer months the bright pure air is well fitted to attract visitors in search of health, and weary men wishing an invigorating respite from the din of the madding crowd and the worry of civilised existence.

The Carboniferous coal in the Culm strata at the head of the Ice Fjord is best developed on Mount Pyramid, Mount De Geer, and on the east side of Klaas Billen Bay. In the *Coal Resources of the World*, vol. iii., a short account is given (p. 1142) of this coal, by B. Högbom, the well-known Swedish geologist of Upsala University. He states that the coal is of second-class quality, with 10 per cent. of ash, and on Mount Pyramid the series of strata containing the seam have a thickness of 915 cm. and of this 705 cm. (or a little over 23 feet) consist of coal. In none of the coal beds does the ash exceed 15·5 per cent., and in one seam, about 200 cm. (or 6½ feet thick), the percentage is only 7 per cent. The coal appears to be very variable in quality and thickness, and there are seams of lower grade coal that were not taken into account, but the probable extent of the workable Carboniferous coal extending under Mount Temple to Sassen Bay, according to Högbom, may be 630 sq. kilometres, containing perhaps as much as 6,000,000,000 tons. It is, however, not yet known with any certainty what the quantity and quality of the coal to the east of Klaas Billen Bay and under Mount Temple may be, and further exploration by boring is necessary. Coal has lately been selling in Norway in 1919 at £8 to £9 per ton, and with much lower prices even coal of second class quality should be a workable subject. The best coal, as has been said, is the Tertiary seam worked by the Norwegians at Advent Bay. Unlike most Tertiary coal, it is of remarkably good quality and great heating power. Högbom states that it contains only 2·5 per cent. of ash and has 81·5 per cent. of carbon. He estimates the total quantity in the part of the field that has been explored at 2,000,000,000 tons, but, as the thickness is very variable, here also all such estimates may prove

very wide of the mark. Coal of Jurassic age is also known, but the seam is poor in quality and is mixed with bands of dirt, so that it has not been found practically workable.

Dr. Rudmose Brown incidentally refers (p. 222) to the possibility of oil being tapped, and as most oil occurs in Tertiary rocks, it is possible that some of the Spitsbergen Tertiary strata may prove petroliferous. A strong oily odour has been felt by Dr. Bruce and other explorers at one or more places on the Stor Fjord, and there have been tales of liquid oil seen on the surface of some streams. But, so far, nothing has been discovered to indicate any oilfield of value, and such reports must be received with caution. The soil, like that at Klondike, has a normal temperature much below freezing point for a depth believed to extend to several hundred or even a thousand feet. In such circumstances boring is a difficult operation, since the water in the bore-hole quickly freezes up, unless a stream of hot water is made to circulate continuously through it during the drilling process. Crude oil freezes easily, and thus any oil occurring within the frozen zone is not likely to be found in the fluid state. It must not be forgotten that nearly all the greatest oilfields hitherto discovered are in tropical or sub-tropical areas where ice is unknown.

There are tales of valuable metals such as molybdenum, platinum, and even alluvial gold, but workable auriferous gravels are not likely to be found in glaciated countries. The remarkable goldfield of the Yukon, in a region far to the north of the limits of the former Canadian ice cap, is a more or less isolated phenomenon. The rich auriferous gravels of the Klondike field and the Yukon are of preglacial age, and their preservation is due to the fact that during the Ice Age, the local climate, though cold, was so dry that no snowfields and glaciers were formed in that part of North America. At other places the glaciers in the valleys scoured out all the pre-existing gravel-beds, and swept away any gold that might have accumulated in them. For the same reason, any alluvial gold that may ever have existed in the Spitsbergen valleys is likely to have been all cleared out by the old glaciers, and there is little probability of finding much gold among the newer glacial gravels. Metallic ores and precious metals are generally found among the crystalline and metamorphic rocks, and not in the younger sedimentary formations of which the interior of Spitsbergen appears to be mainly composed. The Hekla Hook rocks are the only likely habitat of metallic minerals and ores of value, and the older crystalline rocks that might be metalliferous are so little exposed that nothing important can be expected from them. We are told (p. 221) that a few Klondike miners who worked alluvium in the Sassen River some years ago had no success and that gold-bearing quartz has not been found, despite reports to the contrary.

Of non-metallic minerals, besides the gypsum already mentioned, asbestos and finely coloured marble are known to occur. For economic geologists, Dr. Brown believes that Spitsbergen offers a wide field of work, but hitherto geological explorers have mainly devoted their attention to the elucidation of scientific problems only.

In Chapter x. the author gives an account of his experiences in an inland journey he and Dr. Bruce once made, which illustrates the

The Head of Klaas Billen Bay. The *Petrel* in the background, and members of the Scottish Expedition in the foreground.

Longyear City and Advent Bay.

difficulty and danger of travel in No Man's Land. They expected to be picked up by a Norwegian tourist steamer in August at Bjona Haven at the foot of Mount Temple, but the ice conditions were bad that summer

and the pack ice prevented her from reaching them. They had no alternative but to walk overland to Longyear City, the American mining camp, which by sea was some 30 miles distant. The first 12 miles were accomplished in a Norwegian pram after eight hours of strenuous rowing and baling in a stormy sea. It was found impossible to use the frail craft any longer, and the rest of the journey had to be made on foot over hill and dale and rivers that lay between them and Advent City, where food and shelter were expected. But when the goal was reached the exhausted and hungry travellers found themselves in a lifeless settlement that had been looted and virtually destroyed. "Only the log houses remained standing; their doors and windows were smashed, their roofs in many cases stripped. We searched vainly for something to eat, and our failure to find anything was aggravated by the signs of wanton destruction of food. One storehouse was ankle-deep in broken jars and smashed bins; another had an inch layer of treacle over the floor, on which were scattered smashed crockery, tools, nails, etc." . . . They ultimately managed to get a meal off a little stale bread and tea, but had to retrace their steps up Adventdal and reached Longyear City after covering 70 miles in 46 hours, when they were hospitably received by the Americans and found a steamer to take them off.

The case of Advent City illustrates the need of a police force to put an end to the state of anarchy in Spitsbergen. "The wanton damage (p. 243) was such as might have been done by a German army in a French or Belgian village, save that the settlement had not been set on fire. Somewhat less savage treatment has been meted out to other houses belonging to Swedes and Russians, and even in summer prospectors have been robbed of their stores when absent from their camp for a day or two. The culprits are invariably Norwegians—not that Norway is in any sense responsible. Every country produces unprincipled men of that type, but Spitsbergen knows only those of Norwegian nationality. Their country has no particular reason to be proud of them, and to do them justice they rob their countrymen and foreigners with a strict impartiality. As long as Spitsbergen is under no control, and has no police, this sort of thing will continue. To catch the culprit is no easy matter: to bring him to justice is a difficult task." Now that Norway is made responsible for the maintenance of order, such incidents should be relegated to the limbo of ancient history, and, as the Norwegians themselves appear to have been the chief delinquents, it is appropriate that they should be left to the charge of their own compatriots and dealt with in their own courts of justice.

Apart from its industrial possibilities Spitsbergen has many attractions as a tourist resort. The sunny climate in July and August, when the fjords are generally clear of ice, is described as dry and invigorating. The low ground for a short time is covered at many places with a beautiful Arctic flora. There are no trees except a dwarf birch which only attains a height of 2 or 3 inches, and the only timber found on the islands is driftwood which is washed up on the beaches in large quantities, and the far travelled larch and pine trunks are sometimes 50 feet in length. The trees come down the Siberian rivers and

are transported by ocean currents from the south and east. The reindeer appear originally to have migrated on drift ice from the same quarter. Spitsbergen is a paradise of birds in summer, but there are only three species of land birds—sand-pipers, snow buntings, and ptarmigan. The ptarmigan is unique in being the only land bird which remains throughout the year. The cod is the most abundant fish, and a variety of salmon is found in certain rivers, while all the fjords are inhabited by the harmless Greenland shark.

In comparatively recent times, and since the Ice Age, the north of Spitsbergen, like Iceland, was the scene of some volcanic activity. In the north-west corner in Bock Bay, a branch of Liefde Bay, an extinct volcano has been discovered, 1650 feet high, and near it a line of eight hot springs with a temperature of 75° to 82° F., which have formed an interesting series of lime basins. If this remote part of the island were ever to be settled the warm water might, no doubt, be turned to advantage, and, like the natural hot baths in the Rotorua district of New Zealand, assist it to become a comfortable health resort. An unfailing supply of warm water in such a cold place is a natural asset of some importance, but in the meantime that part of Spitsbergen is so inaccessible and ice-locked, that the hot springs are not likely to be more than scientific curiosities for the few explorers who occasionally venture so far north.

The west coast is free of ice in summer for at least three months as a rule, during which ships can enter the fjords. There are many good natural harbours with deep water close to the shore, where wharves can be constructed without difficulty for vessels to load or discharge cargo close to the local centres of industry that may arise. Although there are six months of polar night, the darkness is not so deep as to prevent a certain amount of locomotion, and is often relieved by the aurora borealis. When the ground is hard frozen and the rivers ice covered, travel is easy so far as surface conditions go. But in the early summer months the melting snow, soaking swamps, and swollen rivers render travel both difficult and dangerous. The best month is August, when the ground is dry and pleasant to walk on, and the rivers are at their lowest ebb.

H. M. CADELL.

---

## THE ETHNIC *VERSUS* THE ECONOMIC FRONTIERS OF POLAND.[1]

By M. A. CZAPLICKA.

THE war has made familiar to us such expressions as geographical, historical, ethnic, and economic frontiers. I shall deal with each of these separately, and then consider their application to Poland. Since, however, the war which has just finished has been waged for the

[1] A paper read before Section E (Geography) at the Bournemouth Meeting of the British Association.

application of the principle of ethnic frontiers, and since we are now passing through an economic crisis, which is a warning to us not to disregard the importance of economic frontiers, I propose to deal with these two principles in greater detail.

Upon the definition of a geographical frontier every one agrees. It is a frontier clearly demarcated by such geographical features as mountains or water. It used to be regarded as a frontier which ensures to the people within it integrity of race and safety in time of war. One knows, however, that even such a perfect sea frontier as that possessed by the British Isles did not and cannot protect them from invasion without the assistance of a sea and air force. The ideal geographical position of the Montenegrins did not protect them from being amalgamated with the Yugo-Slavs, just as the ideal position of Bohemia did not protect the Bohemian race from having a German minority. If frontiers were drawn merely in the expectation of war, then the natural barriers, such as mountains, would perhaps be of some use, providing that the enemy was not in possession of the heights. On the whole, geographical frontiers which take into consideration merely the soil must give way before frontiers based on historical, ethnic, and economic considerations.

The geographical frontiers of Poland are well marked in the north by the Baltic coast, and in the south by the Carpathian Mountains, especially that branch of them which is called the Tatra. Farther east, the Carpathians form the Polish frontier only if we consider Eastern Galicia as an integral part of Poland, as it was from the fourteenth century to the Partitions. To the west and east the frontiers of Poland are not so well defined. The river Warta and the upper parts of the Odra (Oder) are, roughly speaking, its frontiers in the west, while, in the east, the river Niemen divides the Poles from the Lithuanians. The marshes of the river Prypec (Pripet), a tributary of the Dnieper, divides them from the White Russians, and the tributaries of the Dniester from the Ukrainians. The most striking feature of the geographical position of Poland is that she is a country of transition in climate, flora, and fauna. This character, which economically and culturally is of great advantage to the country, is, of course, less favourable in time of war. That is why, though all the countries of Eastern Europe—Poland, Bohemia, Rumania, Hungary, Austria, and the Balkans—have served as bulwarks defending Western Europe from Asiatic invaders, it is on Polish soil that most of the battles have been fought. Yet, while the mountainous Balkans were subdued by the Turks, Poland the transitional was never under Turkish rule.

Next come historical frontiers, that is those which a State claims on the ground that it possessed them for a considerable length of time. This is, of course, the consideration most open to controversy, but at the same time it cannot easily be overlooked, seeing that it has much to do with creating national traditions.

Not merely the duration of a frontier ought to be considered, but also the question whether the particular period under consideration lay

in ancient or modern times, and above all, whether the frontier was obtained by means of conquest or by agreement with the neighbouring peoples. Of course for the last hundred and fifty years Poland has been merely an historical name, because, although ethnically the Poles did not cease to exist, the country was known politically under three different names. But when speaking to-day of Poland, it is impossible to consider her within the frontiers as provisionally drawn by the last Peace Conference, because as you know the final frontiers have not yet been settled. We must rather consider her frontiers before the First Partition.

In dealing with the historical frontiers, I propose to draw your attention to three aspects of the question. The first question is: Where is the cradle of the Polish nation and of the Polish State?—the second: What were the most stable frontiers of the Polish State, frontiers which the Poles reached by agreement with their neighbours, and which lasted for five, six or seven centuries?—the third: What were the frontiers which the Poles obtained by conquest, and held occasionally for several centuries, without amalgamating the people within the Polish State?

As to the first point, it is between Posen and Gnesen that the cradle of the Polish State must be sought, and it was here that the first Polish historical dynasty of peasant origin, called Piast, originated. That is why the country round Posen, Gnesen, and Breslau is called Staropolska (Old Poland).

The western frontier of Old Poland moved somewhat to the east in the fourteenth century, when Germany acquired Western Silesia, and that was also the time when Poland reached those stable frontiers in the east which she retained till the Partitions. That forms the second aspect of her historical development. These frontiers ran from Riga to Vitebsk, from Vitebsk to Kaniow, south of Kiev, and from Kaniow to the middle of the Dniester. Such were her frontiers at the time of the First Partition in 1772, and they enclosed two political units, the Polish Crown and the Duchy of Lithuania. The northern part of the Ukraine as far east as the Dnieper and as far south as Kaniow had also belonged to the State since the Union of Lublin in 1569. The third historical stage was when Poland included south-western Ukraine, and the Ukraine on the other side of the Dnieper as far as Borodino. Such were the Polish frontiers based on conquest. She occasionally extended north of Riga as far as Esthonia, and in the south occasionally included Moldavia and Moravia. It will be seen that all these occasional additions obtained by conquest did not belong to Poland in 1772 at the time of the First Partition, nor did she possess Eastern Prussia, which made a tongue of foreign land inside Polish territory, in political dependence only on Poland for some two hundred years. Hence the Poland of 1772 consisted of about 300,000 sq. kilometres of territory, chiefly inhabited by Poles, and usually called ethnic Poland, and of about 400,000 sq. kilometres of territories inhabited chiefly by non-Poles, such as Lithuanians, White Russians, and the Ukrainians of the north-western Ukraine—that is, the Governments of Kiev, Volhynia, and

Podolia. This part is usually called historical Poland. Altogether the Poland of 1772 included about 700,000 sq. kilometres.

We shall pass next to the frontiers, which are, perhaps, the most difficult to define, because they arouse the strongest emotions—I mean the ethnic frontiers. Here, of course, arises the question, which must so often have faced the Peace Conference, what is it that forms a nationality? And what differences form sufficient excuse for drawing a boundary between two peoples? Let us be frank and admit that there is no State in the world which can be composed of a nation of one language, one religion, and one culture, and that carrying the ethnic principle to extremes is an absurdity which may turn against the people on whose behalf the principle is invoked. For, on such grounds, German Austria and Switzerland would have to be given to Germany. But two tests of national consciousness may safely be applied. If the national tradition is sufficiently strong to keep in check class differences, and if all classes prefer to suffer some economic discomfort under their own Government rather than to enjoy greater economic advantages under a foreign one, then one can be fairly sure that such a group can be called a nation. Judged from this standpoint, the Polish nation is chiefly found in ethnic Poland, the Poland stretching over 300,000 sq. kilometres. But through Poland's many centuries of domination over the lands forming historical Poland, Lithuania, White Russia, and north-western Ukraine, there are still some portions of these lands adjacent to ethnic Poland where people are to be found who are predominantly Polish in character.

The one hundred and fifty years of Polish political dependence did not affect that part of Poland where the national tradition was strongest —that is to say, the Poles in ethnic Poland did not become German or Russian. But in that part of the Polish State brought under Russian rule where several other nationalities occurred besides the Poles, great changes have taken place since the Polish Partitions. Various peoples, who at the time of their dependence on Poland had not felt sufficiently national to think of independence, have awakened under the Russificatory measures of the old Russian Government. These peoples are the Ukrainians, the Lithuanians, the White Russians, the Letts, and the Esths, most of whom live in territory belonging to Poland in 1772. This is a fact which has to be faced by any one who does not wish for fresh wars in the name of political freedom, and both Russia and Poland have to reckon with it, whatever political form these reborn, or newly-born, nationalities may adopt. In the case of Poland this means that 360,000 sq. kilometres of the Poland of 1772 must not be considered Poland when the principle of nationality is taken into account, even though the Polish language, commerce, education, and other social institutions are sprinkled through these territories.

But the recognition of the nationality of the peoples just mentioned does not finish the ethnic problems connected with the drawing of Polish frontiers. There are, as you know, areas lying on the outskirts of ethnic Poland which are regarded as doubtful. The part of Silesia round Cieszyn (Teschen) is claimed by the Czechs, the part of Silesia

round Oppole (Oppeln) is claimed by the Germans, and Eastern Galicia by the Ruthenians, who form the majority of the inhabitants, and by the National Party of the Ukrainians, otherwise called Little Russians, who are linguistically and racially the most akin.

Of these territories the first two can only have one aspect if viewed from the ethnic standpoint. In the Silesia of Cieszyn the Poles form an overwhelming majority of 70 per cent. as against 19 per cent. of Germans and 11 per cent. of Czechs—that is, if we detach from it the district of Frydek, where the Czechs constitute 74 per cent. and the Poles only 15 per cent. The Silesian district of Oppole is also unquestionably Polish, for here in twelve contiguous districts the Poles form 80 to 94 per cent. of the total, and in eighteen districts the majority.

As to the third territory of ethnic conflict, Eastern Galicia, the Poles form a majority in Galicia as a whole, but in Eastern Galicia they number 36 per cent. as against 58 per cent. of Ruthenians, the remainder being Jews and Germans. But the Poles are in a majority in the easternmost part of Galicia, and in the large towns like Lwow (Lemberg); hence the Poles divide the Ruthenes from their kinsmen the Ukrainians. This ethnic situation may be compared superficially to the separation of the East Prussians from their kinsmen in Germany by the Polish corridor, but in reality the two are scarcely comparable. The East Prussians are colonists of the same nation in culture, language, and history as the Germans in Germany, and the Poles neither could absorb them, nor do they wish to do so, while the Ruthenians, though more closely related to the Ukrainians than to the Russians or the Poles, have never formed one nation with the Ukrainians, because that country, as it is to-day from the Dniester to the Don, has arisen only since Eastern Galicia became Polish. In the early days of the Ukraine, when it was called Kieff Rus, and was centralised round the Dnieper, Eastern Galicia only belonged to it twice, and only for a couple of years each time (once during the reign of Prince Vladimir, and once during that of Yaroslav). There is no question that the Ruthenians are closely related to the Ukrainians, but their language, historical experience, and culture are as yet distinct, and their recent movement towards amalgamation has been fostered by the political rivalry of the Austrians and Russians. In a word, to unite Ruthenian and Ukrainian at their present stage would mean not a recognition of an existing nationality, but the experiment of creating a new one.

I do not mention here the southern district of East Prussia, Olsztyn (Allenstein), and the eastern district of West Prussia, in both of which the situation is ethnically more favourable to the Poles than in Galicia.

So much for the ethnic aspect. Now, when considering the economic frontiers, it must be remembered that these are almost always opposed to the ethnic boundaries, and it is hard to conceive how this difficulty can be solved unless we give predominance to one principle. But out of all the territories which are involved in the reorganisation of Europe, Poland has an almost unique position in that her ethnic and economic frontiers coincide in all cases with the exception of Eastern Galicia, where

again she claims an unusually strong historic right. The question of Dantzig—that natural outlet to the sea which was in Polish hands until the Partitions—is a case quite apart, though Dantzig can be compared to Eastern Galicia on the ground that both are economically most important for Poland's independence. One cannot consider the inhabitants of Dantzig Prussian, though they speak German. The territory round is Polish, and historically Dantzig has always belonged to Poland, and its economic interests coincide with those of Poland and are opposed to those of Germany.

When speaking about economic frontiers it must be understood that these are frontiers enclosing territories where the natural resources are sufficient to support the population. Now each country hitherto independent knows its own minimum necessities, and it may be argued that in the political dependence in which she has been held, Poland has no right orientation in this direction. Yet all who have known her inner history during the last fifty years have realised that, though politically oppressed, the Poles were not entirely economically dependent on the three occupying Powers. In fact, all economic life here was a struggle between, on the one hand, the programme of the Poles to make of the Polish lands one economically independent unit, by establishing industrial and agricultural organisations to co-ordinate the three parts; and on the other hand the regime imposed by the partitioning Powers under which the Polish provinces were to be made part of the separate economic units, even if strong local industries had to be killed in the attempt. In this struggle, which has developed especially within the last fifty years, the Poles gained the upper hand, if not absolutely, at least relatively. The results of this can be summarised in a curious diagram showing two belts, one longer and one shorter, where the population is especially dense (above two hundred to a sq. kilometre), because the industries are centralised. These two belts form, as it were, the backbone of Poland's economic independence. The northern belt runs from Posen to Warsaw and includes Lodz; the southern one runs from Silesia of Oppole, through Crawcow and Lwow towards the Dniester and the towns of Kolomya (Kolomea) and Cerniawce (Czernowitz). The transitional character of Polish economic life is best seen when we study the industries found within these belts of dense population. The northern belt includes agricultural and textile industries, the southern mining, agricultural, and timber industries. Needless to say, it is the presence of coal, iron, salt, and petroleum that has made these two industrial belts so prosperous even under the prohibitive regulations of the three governments. Agriculture is also most intensive in these two areas. Further, it is in these two belts that the two routes lie through which, in Polish lands, exchange is effected between East and West. They form, as it were, a neck between Europe and the Russian and Asiatic East. It must be remembered also that though in 1910 the majority of the inhabitants of Poland were still living on agriculture and the kindred occupations—*e.g.* 56 per cent. in Russian Poland, 54 per cent. in German Poland, and 76 per cent. in Austrian Poland—and that some 60-70 per cent. of the land is under cultivation, yet the proportion of

persons living by agriculture is diminishing daily, and the value of industrial products is beginning to equal and sometimes to surpass agricultural production. The future economic frontiers of Poland must include these two belts of greatest intensity in the economic life of the country, which were formed as fortresses of economic independence, and ought to fulfil their functions now that political independence assures them greater development.

---

## THE LOST CITIES OF CEYLON.[1]

*(With Illustrations.)*

ANURADHAPURA, Sigiriya, and Polonnaruwa, the most famous of the royal and sacred cities of Old Ceylon, were literally lost for centuries; and study and excavation of their sites did not begin seriously till the latter part of the nineteenth century. Since 1890, however, the Government has regularly issued Archæological Survey Reports containing an enormous mass of material.

The study of the cities has been greatly assisted by the Sinhalese Chronicle, or Mahawansa, which deals with the period from about 500 B.C. to the time of the English occupation. Part of this Chronicle was translated into English in 1837 by George Turnour, of the Ceylon Civil Service, and the remainder by L. C. Wijesinha in 1889. It is thus possible to correlate the ruins of the great cities with the history of the Sinhalese power in the island.

The first Sinhalese king in Ceylon was Wijaya, who came over from the mainland on a raiding expedition about 543 B.C. and established himself in the island. His followers appear to have intermarried with the aborigines, of whom nothing is known, though it is possible that the jungle Veddahs are a remnant of them. His successor, King Pandukabhaya (437 B.C.) founded the city of Anuradhapura (Fig. 1); but the most important event in its history was the conversion of King Tissa (307 B.C.) to Buddhism, which gave the city its sacred character. Tissa, who reigned forty years, signalised his conversion and that of his people by many pious deeds, and was responsible for the making of the great reservoirs, or "tanks," which have been restored by the British Government, and made it possible to irrigate the land by means of canals. The water is derived from the hill country in Central Ceylon, and is led to the reservoirs by a wonderful series of canals. Thus Tissa's tank is connected by a winding canal, between fifty and sixty miles long, with the huge Kala tank to the south. This latter has been restored, and now measures seven square miles in total area, but must have been much larger as first planned.

---

[1] Abstract of a lecture delivered by Miss G. E. Mitton to the Society in Edinburgh, on December 16, 1919. See also the author's *The Lost Cities of Ceylon*, London: John Murray, 1910. The accompanying illustrations are from this book, the blocks having been kindly lent by Mr. John Murray.

But in Ceylon, as in all irrigated regions, prosperity is absolutely dependent upon a strong central government. Without this the canals become choked up, irrigation ceases, and the land reverts to jungle. Now, as has so often been the case with early civilisation depending

Fig. 1.—In the Ruined City of Anuradhapura.

In the distance is seen the Thuparama with its modern dome: in the foreground one of the moonstone thresholds.

upon irrigation, the Sinhalese kingdom was constantly liable to invaders. The Tamils from Southern India made repeated incursions, and after a long period of fluctuating warfare, during which the Sinhalese kings frequently retired south to the hill region till they gained strength to push forward once again and eject the invaders, the Sinhalese were finally pushed out of the northern plains altogether, and found a refuge

in the hill country round Kandy, where they remained till their kingdom fell finally in 1815.

The three royal cities are associated with the long period of

Fig. 2.—Sigiriya from the north side.

Sinhalese-Tamil warfare. Thus the first recorded regular invasion was in 205 B.C., when a Tamil kingdom was established. This only lasted some forty-five years, and then fell to the Sinhalese. But other invasions followed, and in the middle of the ninth century A.D., the

Tamils destroyed the sacred city of Anuradhapura. It was again sacked in 1001 A.D., but before this Polonnaruwa, deeper in the jungle, had been selected as the capital, though there was a brief interlude in 477 A.D., when the strange rock fortress of Sigiriya (Fig. 2) became the seat of government. Polonnaruwa was the capital, with breaks, up to 1314, but later it was found impossible to defend it against the Tamils, and the great cities were overwhelmed by the jungle, while the canals and tanks fell into disuse.

Of the cities, and especially of Anuradhapura, which has been most fully excavated, Miss Mitton gave a most interesting account. The special feature here is the large number of sacred buildings, often of

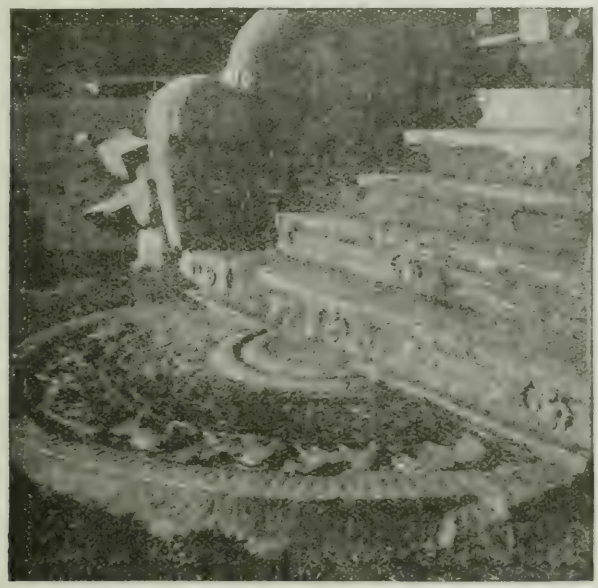


FIG. 3.—Nearer view of a moonstone threshold at Anuradhapura.

great beauty. Among the most curious of these are the great dagabas, or relic-chambers, which have the same function as the pagodas of Burma, but are built in quite a different fashion. A dagaba consists of a huge pile of bricks, solid save for a small passage leading to the sacred chamber which contains the relic. One of the largest of these is Ruanweli, the drum of which is over 178 feet in height. The lower part is now covered by jungle scrub, while the top is capped by a modern copper spire. The chamber contained the largest and most important series of relics in the city. Quite different in appearance is the Thuparama, seen in the background of Fig. 1, which was originally built to contain the sacred collar-bone of Buddha. This relic was enclosed in a cairn of the usual type, but of somewhat small size. The edifice was, however, elaborately decorated and ornamented by successive

kings, while the existing dome is quite modern, the city being a place of pilgrimage for Buddhists to-day.

The same illustration shows an example of one of the beautiful "moonstone" thresholds (see also Fig. 3), characteristic of the ancient cities of Ceylon, which are beautifully carved, with representations of elephants, horses, lions, and bullocks. These animals are believed

Fig. 4.—The Lotus Bath.

either to have some astronomical significance, or to be connected with the four cardinal points.

The Lotus Bath, shown in Fig. 4, is another beautiful relic of the past. It lies in the middle of the jungle, about four miles from Polonnaruwa.

# STATISTICAL ANALYSIS OF A GEOGRAPHY EXAMINATION.[1]

By WALLACE E. WHITEHOUSE, M.Sc., L.C.P.

*(With Graph.)*

A SOMEWHAT critical analysis of the marking of pupils' scripts at the senior (=matriculation) stage of a Geography examination yielded results which may prove of some general interest. The paper was set in the July (1919) Central Welsh Board examination, and the total scripts numbered 2036, but the following remarks are based on 1205 of these.

The examination is usually taken in the pupils' fourth year in the secondary school, and is generally, but not always, preceded by a Junior examination, one year earlier. A few pupils take the Higher Certificate (three papers and a practical examination) in their fifth or sixth year, which Certificate if gained with "distinction" ranks broadly as equal to the University of Wales' Intermediate Degree Examination in Geography. The age of the "senior" pupils varied from 13 (very few) to 19 (chiefly pupil-teachers).

The abbreviated examination syllabus was as follows:—*a.* Exercises in reading topographical and statistical maps and in preparing the latter; latitude and longitude exercises; *b.* Leading facts about climate, local and general—study of records of continuous weather observations; *c.* General relief of land; coast features; common materials forming the earth's crust; *d.* Structure and physical geography of British Isles, thence to chief points in historical and economic development; *e.* Continent of Europe—climate, physical features, human geography; modern States and economic developments—discussion of boundaries, communications, industries and typical town sites; *f.* General survey of world. Trade routes and growth of British Empire.

The paper for 1919 meant six questions to be answered in three hours, and special cautions were included as to necessity for the use of sketch maps and the explanation of conventional signs employed.

Question 1A. [Compulsory]. Imagine an island 740 miles N. to S. and 500 miles E. to W., with varied relief, rising to 3000′ near its centre, which is situated at 178° E. long. and 5° N. lat. Draw a sketch map, scale 100 miles to 1″, adding numbered latitude and longitude lines at 1° interval, and indicate, by means of conventional signs or other means, the leading facts with regard to probable drainage and climate.

Select either No. 2 *or* No. 3; No. 4 *or* No. 5, and any three of the last six questions.

2B. Draw with suitable marginal references a full-page map of your school town, indicating open spaces and marking carefully the relation of the chief public buildings to the chief lines of communications. What improvements could you suggest?

[1] Published by permission of the Central Welsh Board.

3B. Select three towns of some antiquity on the coast of the Mediterranean Sea, and by means of large-scale sketch maps indicate reasons for the development of towns on the sites chosen.

4C. Select three different types of forest regions. Give their exact situation and climate, and describe the human activities in each.

5C. Choose two somewhat primitive fishing communities having marked differences in their activities, and suggest the geographical controls which have assisted in the development of these differences.

6D. Contrast the climate and activities of three widely separated towns in the extreme west of Europe with those of three towns in about the same latitude but towards the extreme eastern borders of Europe. The exact situation of each town chosen must be given.

7D. Compare by means of appropriate scale diagrams the areas and density of population of:—Australia, South America, Africa, and Asia.

8D. Select two non-textile industries for the British Isles, and explain exactly where they have developed best and why they have their present situation. Name some of the chief towns connected with each industry.

9D. Describe the exact situation of two of the chief cities south of the Tropic of Capricorn in each of the three southern continents. State the activities of the areas adjacent to the chosen cities, and indicate the effects of climate and relief on such activities.

10D. Give the exact course of any one political boundary which has been changed in course of time and any one which has been fairly permanent. Suggest reasons for position and alterations.

11D. What interesting examples of rock structure and rock weathering occur in the neighbourhood of your school? Suggest the character of the local land forms in various past ages.

## Discussion of Questions.

The amplified schedule covers these several questions.

It was intended that half of each pupil's script should consist of a general practical exercise, a sketch map and a human geography essay. The marks allocated varied section by section, decreasing slightly from A to D. Any question in D carried 75% of the marks allocated to Ques. 1A.

For some years past an attempt has been made to improve the quantity and quality of the pupils' sketch maps at this and other stages, hence some questions definitely demanded maps. Ques. 2 was chiefly for schools where a careful study is made of local O.S. maps, on various scales. [The Junior syllabus makes a special demand for 1″, 6″, and 25″ O.S. map study.] The question allows the pupil to exercise discretion in the selection of material and demands an appreciation of scale and direction. Some school towns are of such a character that the question possessed peculiar difficulties and so an alternative was set. It is realised that as strict alternatives they are open to criticism. Ques. 3 demands an entirely different fund of knowledge, but the expression "large scale" was interpreted sympathetically by the examiners. As a part compensation

the selection of *any* three non-modern towns meant ample choice. They were both marked chiefly as sketch map questions and long written answers to No. 3 were penalised. They proved fairly equally popular.

Questions 4C and 5C were also expected to rank as fairly equally popular alternatives with No. 5 slightly harder, hence two communities were asked for, as against three regions. It was thought that the fishers of the cold north would suggest themselves at once and a little consideration would yield a contrasting group. In the end, as alternatives they proved very unsatisfactory.

Section D was intended to cater for mixed appetites. Ques. 6 (and elsewhere) contained an attempt to test, among other things, the pupil's knowledge of locational geography.

Ques. 7 met with considerable criticism. Some of it, at least, was quite unwarranted. It opened up a large matter as to whether an examiner should merely test the work generally or be allowed to introduce any personal bias. The latter may in time influence the teaching, and that influence may not be advisable, but this is safeguarded to some extent in the present case inasmuch as (i.) all examination papers of the Central Welsh Board are liable to be submitted to independent referees; (ii.) any school can ask for a special examination schedule; (iii.) there is ample choice of questions. The wisdom of setting question 7 is demonstrated later.

Ques. 8: Industrial geography, and particularly the history of economic developments, should still be encouraged, and pupils are usually given special lessons in Welsh schools so as to allow them to read intelligently articles relating to world's trade, etc. A weakness in the form of the question became apparent when marking commenced. The words "excluding coal" should have been added, otherwise it becomes very difficult to answer one section of the question. Most examiners will agree that no matter how many times a question has been weighed up and checked before printing, it is only when the scripts are under examination that hitherto hidden defects *and merits* in the question are revealed. The writer believes that one of the factors which causes an alteration of "standard" during the actual marking is the sudden appearance of some new point raised by an unusual pupil; the examiner himself may have missed this particular point, and so its absence in some hundreds of marked scripts counts for nothing, but it becomes difficult to avoid penalising, perhaps unconsciously, the later pupils who do not include it.

Ques. 9: This means a long answer if the pupil does not realise how much the requisite sketch maps can be made to include. Ques. 10: The paper was made out in March 1919. This date partly explains the inclusion of the question. The important leaders of serious newspapers are discussed in a praiseworthy manner in many schools. Question 11 was intended to encourage those schools which make a special feature of class excursions.

## Discussion of Results.

Of the 1205 scripts, 784 were written by girls and 421 by boys; 68·4 per cent., in all, passed. The pass mark was 40 per cent.; 41

## — IN THREES. —

INSET GRAPH SHOWN THUS ·····

| GROUP | GROUP QUOTIENT | TOTAL MARKS FOR SCRIPTS IN GROUP. | GROUP FREQUENCY |
|---|---|---|---|
| 1 | 5+6+7 = 18 | 20 | 1·1 |
| 2 | 8+9+10 = 27 | 46 | 1·7 |
| 3 | 36 | 0 | 0 |
| 4 | 45 | 147 | 3·3 |
| 5 | 54 | 307 | 5·7 |
| 6 | 63 | 296 | 4·7 |
| 7 | 72 | 845 | 11·7 |
| 8 | 81 | 1359 | 16·8 |
| 9 | 90 | 1537 | 17·1 |
| 10 | 99 | 2569 | 25·9 |
| 11 | 108 | 2835 | 26 3 |
| 12 | 117 | 6720 | 57·5 |
| 13 | 126 | 6157 | 48·8 |
| 14 | 135 | 4985 | 36·9 |
| 15 | 144 | 4844 | 33·6 |
| 16 | 153 | 4076 | 26·6 |
| 17 | 162 | 4040 | 24·9 |
| 18 | 171 | 3149 | 18·4 |
| 19 | 180 | 1915 | 10·6 |
| 20 | 189 | 1830 | 9·7 |
| 21 | 198 | 1242 | 6·3 |
| 22 | 207 | 1324 | 6·4 |
| 23 | 216 | 1076 | 4·9 |
| 24 | 225 | 300 | 1·3 |
| 25 | 234 | 387 | 1·7 |
| 26 | 243 | 82 | 0·3 |
| GRAND TOTAL FOR ALL SCRIPTS | | 52,088 | |

## — IN FIVES. —

INSET GRAPH SHOWN THUS ——

| GROUP | GROUP QUOTIENT | TOTAL MARKS FOR SCRIPTS IN GROUP. | GROUP FREQUENCY |
|---|---|---|---|
| I | 6+7+8+9+10=40 | 66 | 1·6 |
| II | 11+12+13+14+15=65 | 131 | 2·0 |
| III | 90 | 423 | 4·7 |
| IV | 115 | 1041 | 9 0 |
| V | 140 | 2276 | 16·2 |
| VI | 165 | 4239 | 25·7 |
| VII | 190 | 8505 | 44·7 |
| VIII | 215 | 9762 | 45 2 |
| IX | 240 | 7524 | 31·3 |
| X | 265 | 6816 | 25·7 |
| XI | 290 | 4576 | 15·7 |
| XII | 315 | 3228 | 10·2 |
| XIII | 340 | 1656 | 4·9 |
| XIV | 365 | 1224 | 3·4 |
| XV | 390 | 539 | 1·4 |
| XVI | 415 | 82 | 0·2 |
| GRAND TOTAL FOR ALL SCRIPTS | | 52,088 | |

AVERAGE MARK SENIOR STAGE

1919

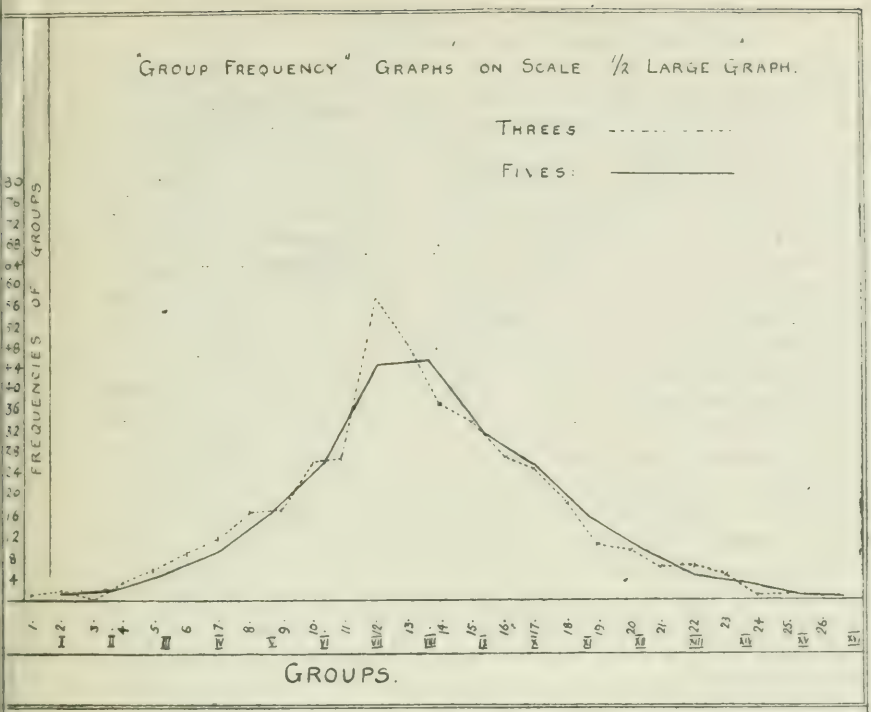
[FOR 1205 SCRIPTS]

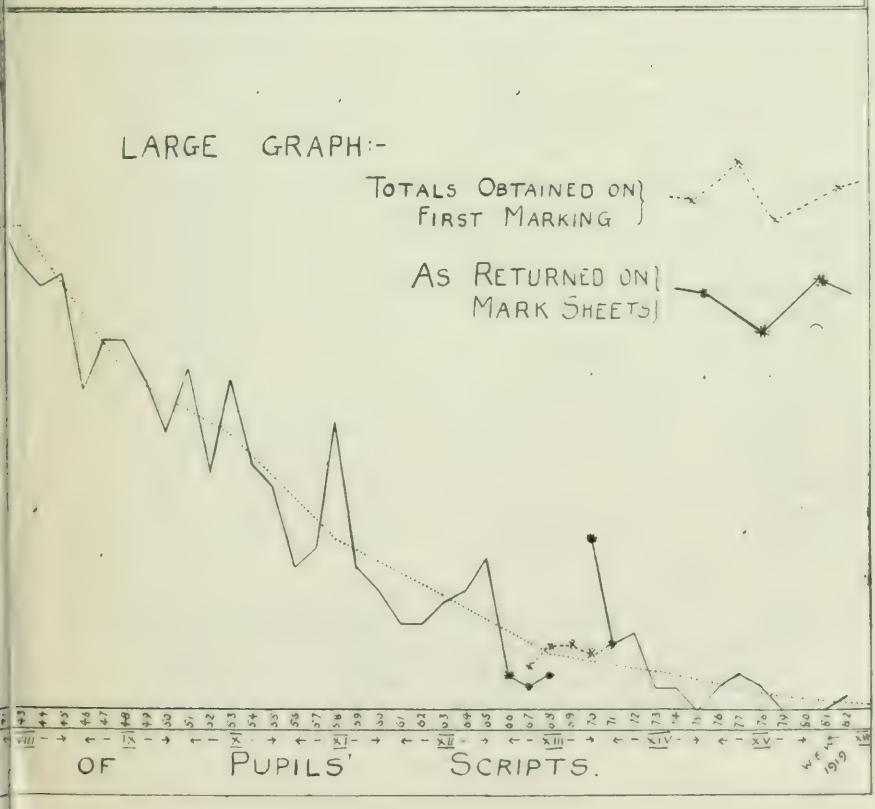
43·23%

NUMBER OF SCRIPTS.

PERCENTAGE MARKS

←GROUP I→ ←II→ ←III→ ←IV→ ←V→ ←VI→ ←VII→


"Group Frequency" Graphs on Scale ½ Large Graph.
Threes
Fives
Frequencies of Groups
Groups.


Large Graph:-
Totals Obtained on First Marking
As Returned on Mark Sheets
of Pupils' Scripts.

gained "distinctions" = 70 per cent. and above. The limit marks were 6 and 82. In some of the schools boys and girls are taught together. In the mixed classes, 78·1 per cent. of the boys passed and only 61 per cent. of the girls. This difference is still serious. [In non-mixed schools the boys' passes exceeded the girls' by only 2·6 per cent.] From past analyses the differences in mixed schools, always in favour of the boys, were 27 per cent. in 1915; 26 per cent. in 1916; 24 per cent. in 1917; 20 per cent. in 1918, and 17 per cent. in 1919. The decrease is due to the girls doing better, and the boys doing relatively worse: one reason for that may be that in recent years more girls than boys decide to proceed to the stage beyond senior—this year, for example, the 26 entries for the highest stage included 19 girls and 7 boys; the brighter boys in many mixed schools are advised to take up other subjects than geography; in general, girls form about 56 per cent. of the total pupils in Welsh Secondary Schools, or about 59 per cent. of those between the ages of 14 and 17 (most frequent "senior" ages), but girls' scripts formed 65 per cent. of the total of 1205 scripts, and even higher than this in the case of the mixed schools alone. But this is possibly only part of the explanation of the decrease. The *total* percentages of passes are given for comparison: 1915 = 63·9 per cent.; 1916 = 65·4; 1917 = 62·6; 1918 = 61·5. [All these totals are based on the quotas actually marked by the writer.]

The accompanying large graph indicates the frequency of any particular "mark" in 1919, *e.g.* the perpendiculars show that 30 pupils had 35 marks each, 20 had 28 marks and 5 had 20 each, and so on. In all, 52,088 marks were gained = an average of 43·23 per script.

The graph illustrates several points of which only a few can be dealt with in this article. Of the 824 "passes," no less than 130 were entered up on the mark sheets as a bare 40 per cent. This large total causes an unusual peak in the marks distribution curve. The steepness, however, is largely due to deliberate manipulation. In addition to the usual checking, it is the practice to re-mark very carefully all scripts falling within 2 per cent. of the pass line. Thirty-nines are not entered on the mark sheets; they are either entered as 40 or 38. The first marking gave 69 scripts with 40 and 54 with 39; practically all of the latter were lifted to 40 per cent., and the final checking resulted in the net lifting of 3 of the 38's up to 40, and the dropping of 4 from the 41 per cent. to 40. Forty per cent., though a pass mark, is not a good mark. In the case of the 70 per cent. marks there were some final adjustments which can be read off from the graph—here the lifting started as low as 67 per cent.; very good scripts are more difficult to assess exactly, and the benefit of the doubt is always given to the pupil.

The next piece of calculation was to determine a smoother curve of marks distribution. The whole of the details of this work are set out in insets on the graph. A "three" group was first tried, and, so that 38, 39, and 40 should fall in the same group, the first group consisted of marks 5, 6, and 7. The argument is that if one pupil got 5 marks, one got 6, and one got 7, then the total marks would be 18. This is

called the group quotient. As a matter of fact no pupil got 5 marks, one got 6, and two got 7 ; therefore the total for group 1 is 20, and this divided by the group quotient equals 1·1. This has been called the group frequency ; in group 3 no pupil had 11, 12, or 13 marks, therefore the frequency was 0. [The 8 scripts which obtained less than 11 marks each were largely in one bad little batch.] Again, group 9, for example, consists of 29, 30, and 31 marks—quotient equals 90 ; 13 pupils obtained 29 marks each ; 18 had 30, and 20 had 31 ; total marks for group equals 1537, and this divided by 90 gives a group frequency of 17·1. It was considered that this curve was not smooth enough, so groups of fives were taken, the method of calculation being as before. The "fives" is quite a good curve, and group frequencies on each side of the peak might be compared—group XI = 15·7 and group V = 16·2 ; while groups X and VI are each 25·7. [Readers very interested in statistical matters can work out the probable consistency of the marking.] The peak occurs in group VIII. Group IX appears to be rather low and group VII much too high, but this is partly due to the lifting of 38 and 39 and the dropping into the group of four scripts which were at 41 before revision. The "first marking" gives a better group frequency curve and the later manipulation of marks has distorted it, but the distortion proves that, rightly or wrongly, the manipulation was in favour of the pupil. The "fives frequency" curve was then marked on the larger scale, the verticals representing group frequencies being plotted above the central number of the group—this throws the peak to 43 per cent. [average mark = 43·24 per cent.] and the whole balances fairly well. A calculation will prove that a group frequency curve plotted in this manner will contain the correct number of pupils (though this actual one contains 1209 instead of 1205, on account of frequencies being calculated correct to first decimal place only) and it can be made to contain the required 52,088 marks by sliding it to the right or left. This rather long account of the preparation and discussion of the graphs has been included as it is applicable to any series of marks, and many feel that in a subject such as geography, where it is so much more difficult to keep standard than in, say, mathematical papers, it becomes advisable to make occasional checks of results.

## Question Analyses.

| Optional Question. | Attempts. | Percentage (Of all pupils). | "Failures." | Percentage (Of attempts). |
|---|---|---|---|---|
| 2 B | 617 | 51·2 | 84 | 13·6 |
| 3 B | 558 | 46·3 | 157 | 28·1 |
| 4 C | 949 | 78·8 | 183 | 19·3 |
| 5 C | 191 | 15·8 | 138 | 72·3 |
| 6 D | 517 | 42·9 | 130 | 25·1 |
| 7 D | 303 | 25·1 | 159 | 52·4 |
| 8 D | 970 | 80·5 | 279 | 28·8 |
| 9 D | 348 | 28·9 | 141 | 40·5 |
| 10 D | 438 | 36·3 | 109 | 24·9 |
| 11 D | 501 | 41·6 | 164 | 32·7 |

Each pupil attempted an average of 4·4 of the optional questions.

For the optional questions the paper was so arranged that the choice was always between one of two questions, so average popularity would mean attempts by 50 per cent. of the pupils. The word "failures" used in table above refers to the question only. Forty per cent. of full marks for the question ranks as a pass.

The following criticisms, etc., may contain some hints for teachers.

In general, pupils seemed to understand the terms which they used, but something has gone wrong in the following: "Wrexham is a *forlorn* town"; "Oswestry is a *four line* town"; "Shrewsbury is an *odol* town"; "Swansea owes its development to its *marital* conditions."

Question 1. It is a matter for discussion whether compulsory questions should be included in a geography examination paper or not, but this is a perfectly straightforward checking of general principles and so was made compulsory. It certainly gave valuable clues as to general weaknesses in certain schools. One statistical point of interest was that the number of pupils failing to exceed *quarter* marks on this question was slightly more than the number "failing" in the paper as a whole. Therefore, either the work in the majority of schools includes insufficient revision or the question was unduly hard. Opinions may differ as to the correct answer. In the individual non-mixed schools there was only *one* girls' school where the number of attempts exceeding quarter marks for this question was higher than the number of examination passes. In the case of the boys' schools *every* school had this result. In 52 schools there were only two where every pupil exceeded quarter marks on the question and their work was good throughout. Some of the interesting mistakes included references to 178° *latitude* and to 184° longitude, and the making of an island 740 miles by 500 extend from pole to pole and half-way round the globe at the equator. A large number *enclosed* the peak in a 3000′ contour line and spoke of it as being perpetually snow covered,—at latitude 5° N.

Question 2. Many of the suggestions were too drastic to be practicable but yet indicated considerable thought, and several were worthy of circulation among the civic authorities concerned.

Question 3. Many pupils used the term Mediterranean Sea to include Black Sea and even East Atlantic.

Question 4. "Tundra" and "Savannahs" were often classed as forests. There were many amusingly phrased answers here, *e.g.* "Their life (Canadian lumberjacks,) too is a hard one. They live 'in the eyes of God.' They may be narrow-minded, but this is merely the outcome of their mode of living."

Question 5. The Dogger Bank was frequently spoken of as the fishing ground of primitive communities.

Question 6. Russian towns were often put too far south, *e.g.* Oporto and Petrograd in the same latitude (several times).

Question 7. This easy question, based on scaled diagrams printed in abundance in text books, was badly done. Page after page was written in many cases. South America was classed as larger than Africa, and Australia as more densely peopled than Asia, and so on; one pupil

stated that "more than half of Asia has a population exceeding 1000 persons to the square mile, . . . its total area is 290,000 square miles, . . . Asia's population is 300,000."

Question 8. Cotton and woollen industries were often *classed* as non-textile. One specimen of cause and effect argued that "Coal mining is carried on in mountainous regions, for where there are mountains there are valleys, so that the mountain obstacles can generally be put down by using the valleys."

Question 9. Whole schools had *no* attempts for this question. The course of the Tropic was not well known; while "because of being in the Southern Hemisphere" is a new reason for transposing East and West.

Question 10. Several failures for this question contained essays on coast erosion, but there were many really excellent discussions.

Question 11. As expected, the attempts proved that carefully organised class excursions provide some of the most valuable and stimulating geography work.

Finally, the time spent in marking the 1205 scripts, including entering up of mark lists but excluding all percentage calculations, amounted to 205 hours or an average of 10·21 minutes per script

## THE BOURNEMOUTH MEETING OF THE BRITISH ASSOCIATION.

After an interval of two years the British Association once more met last year, the meeting-place being Bournemouth, and the President the Hon. Sir Charles Parsons. At the previous meeting, held at Newcastle in 1916, in the midst of the war, and in a city where war conditions were acutely felt, the attendance was only 826. At Bournemouth the figure approached 1500, which must be regarded as very satisfactory.

In vacating the presidential chair, which he had occupied for the unprecedented period of three years, Sir Arthur Evans pointed out that, despite the suspension of the public meetings, the work of the Association had been going on during the period, and that body had been able to render assistance to the Government and country in the hour of stress. He emphasised also on the special need of scientific method and ideas in the post-war period upon which we are entering, and the widened prospects of usefulness which are now opening out for the Association.

The effect of war conditions is noticeable in certain financial changes in regard to membership which were passed by the General Committee. Thus the fee for new life members is raised from £10 to £15, and for annual members from £1 to £1, 10s.; the right to obtain the Annual Report is granted in both cases. The Associateship has been abolished. The General Committee also decided that after the Cardiff meeting next year, which is to extend only from a Tuesday to a Saturday, a

return will be made to the old plan of meeting from Wednesday to Wednesday.

Professor W. A. Herdman is to be President at the Cardiff meeting in 1920. The invitation to meet in Edinburgh in 1921 was unanimously accepted.

Room was found for all the Sections at the New Municipal College, where also the Reception Rooms were placed. While it is of course a great advantage to have the work of the Association concentrated in one building in this way, the effort evidently strained the resources of the building, and Section E (Geography) was somewhat inadequately lodged. The Section Room was frequently uncomfortably crowded, and the ventilation left much to be desired, especially in view of the fact that the meeting was favoured by exceedingly hot weather. As has frequently been the case, also, the programme of the Section was somewhat congested, and this meant long morning sessions, in an atmosphere which grew more and more oppressive as the morning went on. It says much for the enthusiasm of the members that not only were the audiences for the papers usually large, but that there were some very profitable discussions.

Professor L. W. Lyde, the President of the Section, delivered his opening address on Tuesday, September 9, but since he is to lecture on the same subject to the Society in the Spring, publication of the address here has been postponed till after the lecture.

Thereafter Mr. R. Campbell Thompson gave some account of his experiences on the G.H.Q. staff in Mesopotamia during three years of war, and of three months' work in excavating the ancient mound at Abu Shahrain, together with some other mounds in Lower Mesopotamia.

The district in which the explorations were made is the area to the SW., S., and SE. of Nasiriyah (about 100 miles WNW. of Basrah), and may be described as Southern Babylonia. It contains the ancient mounds of Ur of the Chaldees (Muqayyar), Eridu (Abu Shahrain), and several smaller mounds, including Tell-el-Lahm, Tell Tuwaiyil, Murajib, Abu Rasain, Tell Jabarah, Tell Judaidah, and another unnamed. Test trenches were dug in Ur (Muqayyar), but the greater part of the digging, lasting nearly a month, was carried on at Abu Shahrain.

Abu Shahrain lies twenty miles distant from Nasiriyah to the SW., out in the desert, and at the time of the excavations (Spring, 1918) was outside the "protected area," but fortunately the local Sheikh Hamud of the Dhafir was friendly. On the 9th of April Captain Thompson started for the mound, with his Irish orderly, fifty Arabs, and the Sheikh. All food had to be transported on camel-back from the nearest station ten miles away; but there were wells within two miles of the mound containing enough water for the expedition, which camped just below the ancient mound. This mound has always been held to be one of the most interesting remains in Mesopotamia on account of the tradition of its high antiquity. It rises abruptly out of the flat, saline desert, the top of its slopes being about forty feet above the plain, and the perimeter

about 1100 yards. The ancient *zigurrat*, or temple-tower, crowns the NW. portion, and rises another forty feet or more. The mound was partly excavated by J. E. Taylor in the middle of last century, but the limitations of archæological science in those days prevented him from making the most of his discoveries.

The results of the present excavations are of the greatest importance for the pre-history of Mesopotamia. Hitherto the two peoples known to have occupied ancient Babylonia about the third millennium B.C. were the Semites (Akkadians) in the north, and the Sumerians in the south. But a quantity of fragments of buff pottery, painted with black geometric designs, was found in these explorations at Abu Shahrain, and—although in far less quantity and sometimes only in coarse traces—even on the surface of five of the other mounds mentioned, which is exactly of the same kind as those found in the two lowest strata of Susa (the capital of Elam) and Mussian by the Dr. Morgan expedition. This Susian pottery, as is well known, bears a striking resemblance to pottery fragments found by the Pumpelly expedition to Anau, about 300 miles east of the Caspian. It is entirely distinct from either Sumerian or Semitic remains, and consequently we must now recognise the presence of a third people settled in very early times in this area in South Babylonia, of the same stock as the peoples of Anau and Elam.

The stone implements of Abu Shahrain are numerous, and the expedition found quantities of flint, obsidian, and crystal flakes, and about 400 chipped axe-heads similar in shape to those from Susa. Particularly noticeable even on the surface were the baked clay sickles, quite practicable for the work for which they were intended, and a large quantity of clay "nails," always bent round at the point, similar to some found at Susa and Mussian. The large quantity of fresh-water mussels found in the strata, in contrast to the very few sea-shells, proves that the Persian Gulf was farther from the mound than the great Euphrates lagoons.

From all indications it seems almost certain that these prehistoric Anau-Elamitic folk could not write. They must have been succeeded by the Sumerians, three kings of whom—Ur-Engur (*c.* 2400 B.C.), Bur-Sin (*c.* 2350 B.C.), and Nur-Adad (*c.* 2175 B.C.)—left inscribed bricks telling of their restoration of the *zigurrat*.

Mr. C. B. Fawcett afterwards gave some account of Bournemouth and its site.

On Wednesday, September 10, Mr. H. Charles Woods read a paper on the "Future of Turkey," in which he discussed some of the difficult problems which have arisen with the break-up of the Ottoman Dominions. Another series of problems arising from the war came up for discussion by Miss M. A. Czaplicka, whose paper appears in the present issue, p. 10. The editor of this *Magazine* also communicated a paper on "Geographical Aspects of Nationality and Internationalism," which may be published here later.

Mr. O. H. T. Rishbeth gave an account, illustrated by a fine series of lantern slides, of the Dodecanese. Although he touched upon the political problems involved, the great interest of the paper lay in its

detailed study of human response to a highly peculiar environment, which may be regarded as typically Mediterranean in character.

Mr. Rishbeth pointed out that although the content of the name ("Twelve Islands") has been variously interpreted, in questions of frontiers it is clear that all those islands lying off the south-west coast of Asia Minor, and which are not yet Greek, are meant. They stretch from close below Sámos on the north to Rhodes on the south-east, towards the Cyclades westwards, and towards Crete south-westwards, and form the south-eastern part of the "Grecian Archipelago." They appear to be mainly a fragmentary fringe of the south-west Asia Minor coast, though others (Kárpathos, Káros, Astypalaia) seem links of westward-stretching former mountain chains, of which they are the unsubmerged summits. They are mainly small barren crags with deeply bitten and often precipitous coasts, hilly or mountainous, devoid for the most part of streams and natural vegetation, and girt by dangerous seas. Rhodes and Kós are larger and are exceptional in many of the above respects, and they have fair stretches of level ground. Geologically the islands are related to south-west Asia Minor and Crete, and volcanic formations and agencies prevail in the more northerly isles. The climate is, on the whole, temperate, but the rainfall for the most part is scanty, and the islands are exposed to winds often violent and treacherous. Conditions of human existence, with some exceptions—notably Rhodes and Kós—are hard: there is little arable ground, often little water, and ceaseless toil is necessary to maintain cultivation. Methods are backward, and Rhodes, mainly as a result of the Turkish occupation, is largely undeveloped. Most of the islands produce some fruit, vegetables, grapes, olives, a little corn, and live-stock. Some are able to export a little; others are not self-sufficing even in these respects, and all depend largely on the import of grain and other commodities. There are no industries of importance; the mineral resources have not been tested, and, with the exception of sponge-fishing—which is interesting in itself, the sole means of livelihood to some of the islands, and productive of considerable wealth—marine pursuits are unimportant. The people—nearly all Greeks—are simple, hard-working, enterprising, and hardy, patient agriculturalists, cunning mariners, daring and skilful fishermen. They are becoming more sophisticated with the growth of better communications and Western ideas. Their historical social institutions are highly interesting, and show them to possess a strong sense and capacity for self-government not inferior to, though little better than, that of ancient democratic states. They are devoted to education and religion (Greek Orthodox Church). The nature of their towns and sites of settlement is also instructive. The chief motives controlling the choice of these sites are climatic and economic, but security, especially security from pirates, counts for much. The development or shifting of the site from seashore to lofty crag, and *vice versa*, reflects accurately both the phases of historical evolution in the Ægean and modern commercial influences. Rhodes has an historical interest of its own.

The modern towns are mostly solidly built, prosperous, and well kept, occupying striking sites on harbours often naturally fine. The

standards of education, comfort, and personal refinement are fairly high, especially in the richer sponge-fishing communities. Rhodes is more backward. The population was formerly about 120,000, all of whom, except some 16,000, were Greeks, but during the last ten years emigration has gone on apace. The islands have had a chequered history, but under Turkish rule (1522-1912) enjoyed a large degree of autonomy, and throve upon it. The Turks became oppressive in proportion as the islands grew wealthy. The Italians occupied the islands in 1912, and subsequently retained them as a guarantee for the Turkish evacuation of Tripoli, and the outbreak of the European War found them in the hands of Italy, to whom they were later pledged in the "Secret Treaty" of 1915. The Greek claim to the islands is based on racial and linguistic, historical, religious, and sentimental grounds. But the possession of these islands, while not without economic profit (*e.g.* Rhodes, Kós, in agriculture and minerals; Symi, Kálymnos, etc., for sponge-fishing), is valuable mainly for the facilities they offer, with their fine natural harbours, for the exploitation of the coast of south-western Asia Minor (Adalia), and for the control they afford of the Ægean communications with Syria and Egypt.

Dr. Vaughan Cornish contributed to the proceedings of the Section an instructive address on "The Geography of Imperial Defence," of which the following is an abstract.

The geographical position of the Empire may appropriately be described by reference to the ocean instead of the continents, since the communications are maritime. The United Kingdom and the chief entrance to Canada are on the Atlantic Ocean; South Africa, India, and Australia are ranged round the Indian Ocean, with New Zealand in the adjacent part of the Pacific. Thus the maintenance of naval communication extending half-way round the world suffices, without the necessity for crossing the other half of the circuit, which is comprised in the Pacific Ocean. The naval communications are, therefore, relatively short, and they are improved by an unrivalled selection of intermediate harbours at natural junctions of maritime routes. The coastal communications of Great Britain and the Colonial communications of the Empire are flanked by the territories of the French Republic much more closely and extensively than by those of any other Great Power. In addition to possessing good naval communications, the territories of a maritime State should be difficult of approach from the continental interiors. This condition is fulfilled in the British Isles and Australasia by their insularity, in India by a great mountain barrier, in Egypt by deserts, and in South Africa by remoteness and the barrier of tropical forest. In Canada alone, which has restricted maritime access and a very open frontier, is there a marked discordance between geographical conditions and strategic requirements. The neighbourhood of the British Empire and the American Republic is, however, not confined to the common frontier, but is also to an important extent upon the sea. This results from the dependence of the American Republic upon maritime communications for the maintenance of the Monroe policy, upon the outpost of Panama, which is required for the maintenance of coastal communication,

and upon the sea for almost all foreign commerce except that with Canada itself.

Australasia and India being nearer to Japan than to Great Britain, the strategic position is locally advantageous to the Japanese, but this is offset by the great maritime superiority of the geographical position occupied by the British Empire as a whole and the United Kingdom in particular. It should also be noted that the security of maritime communication in general is an important common interest of both States.

Egypt not only provides the shortest naval connection between Great Britain and India but the only route for the railway connection between our African and Asiatic possessions. It is also at the junction of the air routes from Great Britain to South Africa on the one hand and to India and Australasia on the other. Owing to the disruption of the Turkish Empire no one Government now has power to provide protected communication from the Bosphorus to the Egyptian frontier, or to Mesopotamia, which is one of the approaches to India, both *via* Persia and the Persian Gulf.

Formerly the foreign policy of Russia and Germany so conflicted in reference to Constantinople that an *entente* was impossible. Now that this position is beyond the attainment of either, the advantages of alliance should be obvious to both those nations. If possessing a common frontier, so that their complementary resources could be pooled without possibility of interference, they would have everything in the way of men and material requisite for a prolonged war on the largest scale. At one end of their combined territory railways reach the borderland of India, the most vulnerable portion of the British Empire. The other end faces the most vital part of the Empire, Great Britain—the chief recruiting base of white troops, the chief factory and shipyard. Germany has excellent harbours within three hundred miles of Great Britain, and adjoins the Low Countries, which provide in the harbours of the Rhine and Scheldt the best base from which to invade the citadel of our Empire. In order to prevent the pooling of resources by Russia and Germany, it is important that the reconstituted States of Eastern Europe should form a complete intercept. Hence the importance of securing the continuity of Rumania and Poland by the restoration of Eastern Galicia to the latter State. The reconstituted States of Eastern Europe will form a continuous territory with population and resources equal to those of a Great Power. We shall have naval access to Yugo-Slavia by Adriatic ports, and to Rumania by the newly-opened Black Sea. Holstein and Southern Schleswig being retained by Germany, that State will have opportunities for military control of the Kiel Canal in the event of war, thus jeopardising our naval communications with Poland.

Such are the outstanding facts in the defensive geography of the British Empire as now constituted; but if, as has been proposed, the Government of Great Britain and Ireland be separate instead of united as at present, a vital change in the conditions would result. The real vulnerability of Great Britain is not to invasion but starvation by

blockade. The area *per capita* is less than half that of France, which country has only just enough land to feed its people. No system of farming at present generally practised will make Great Britain independent of foreign food. This comes across the North Atlantic and Bay of Biscay, since Western Europe has little to spare. Even if there were through railway communication by a Channel tunnel, supplies by this route would be dependent on the grace of foreign Powers. Thus if Ireland be governed separately from Great Britain, the subsistence of the population of the latter would be dependent on the controllers of the Western Island, which flanks the routes from the ocean, and is at present the naval outpost of the United Kingdom. The passages past the Irish coasts are also the routes by which reinforcements and munitions must be sent to the Dominions and territories beyond the ocean from Great Britain, the main recruiting and munition base of the Empire. Thus if Ireland and Great Britain were politically separated, neither Great Britain nor the outlying Dominions and territories would be strategically secure.

On Thursday morning Mr. C. B. Fawcett read a very interesting paper on "Some Geographical Aspects of Devolution in England," in order to open a discussion on the subject. Mr. Fawcett said that the prominence of "Devolution" during this time of Reconstruction may be ascribed to three principal causes, namely: (1) The strength and urgency of the Irish demand for some form of Home Rule, and the existence and growing strength of similar demands in Scotland and Wales; (2) The congestion of business in Parliament, and the fact that the present Parliament is obviously unable to cope with all the tasks which fall to it; (3) The increasing realisation that our counties and county boroughs are too small, in area and in the authority of their councils, to deal adequately with many problems of local government.

The realisation of these facts has led to many references, in the press and from public platforms, to a "Federal Solution." This is usually understood as involving the erection of four national Parliaments, in England, Scotland, Ireland, and Wales, to deal with the internal affairs of each country. The fatal weakness of this solution, as it is thus stated, is that one of the four partners possesses more than three times as much population and wealth as the other three together. The German Empire was the one prominent example of a federal state in which one partner was dominant, and Prussia was less dominant in that empire than England would be in a federal Britain. In most federal states no one member is dominant; this is the case in Canada and Australia, as well as in the United States and Switzerland. Experience suggests that it is better that no single member of a federal state should be able to outvote all the rest. These considerations lead to the suggestion that in a federal Britain England should enter as a number of provinces rather than as one unit. This would require a division of the country into suitable provinces, a division which must be based primarily on its geography. Each province should be comparable in population with Wales or Scotland.

There are in England a number of distinctive regions of this order of magnitude, of which East Anglia, the Devon peninsula, Yorkshire, and the North Country may be mentioned. The last two of these are more populous than Wales, and the others have each more than a million inhabitants. A division of England into such provinces should be based largely on a study of the present distribution of the population. The existing distribution into counties is, for the most part, based on divisions which grew up long before the Industrial Revolution, and before the resulting great increase and shift of the population which has taken place in the last one hundred and fifty years. Hence the new provinces cannot be based directly on the counties. The principles on which such a division could be made may be set out as follows:— (1) Provincial boundaries should be so drawn as to minimise interference with the everyday movements and activities of the people; (2) Each province should have a definite capital, which should be the real focus of its regional life; (3) The least province should contain a population sufficiently numerous to justify self-government; (4) No one province should be able to dominate the federation; (5) Provincial boundaries should be drawn near watersheds rather than across valleys, and very rarely along streams; (6) The grouping of areas must pay regard to local patriotism and tradition.

(Of these Nos. 5 and 6 may be regarded as corollaries of Nos. 1 and 2.)

There should be no effort to secure uniformity of area or of population among the provinces. Any such attempts would inevitably produce very unsatisfactory and unstable groupings of population, and boundaries which would handicap rather than facilitate effective organisation of public services in the provinces. Several of our larger provincial cities have already become well-developed regional capitals, centres of the economic and social life and thought of populous regions. Among these we may place Newcastle-on-Tyne, Leeds, Sheffield, Nottingham, Manchester, Birmingham, and Bristol. Each of these is also an important node in our road and railway systems, a university town, and the seat of an important press. Hence each could well serve as a capital for one of the provinces.

The discussion which followed was taken part in by Mr. Harold Peake, Professor Fleure, Mr. Chisholm, Dr. Newbigin, and others, and was one of great interest. An objection raised by Mr. Peake, which at first sight seems very cogent, was that the suggested abolition or modification of the counties as divisions would mean the loss of much valuable statistical material. Mr. Fawcett had, however, no difficulty in showing that, in point of fact, the English county boundaries are, and have been for many years, in continuous fluctuation, so that "county" statistics for successive years require careful and detailed investigation before they can be used for comparative purposes. A more serious objection seems to be the implied assumption that the whole of Scotland can be regarded as a natural unit, equivalent to an English "province." Both the paper and the discussion raised, however, many problems of importance, and the methods which Mr.

Fawcett has adopted to find out the regions into which England can be most conveniently divided are extremely ingenious and interesting. Mr. Mackinder has already made use of the circulation of the great provincial daily newspapers as a means of defining "natural regions," but Mr. Fawcett has supplemented this in various ways, notably by studying the "areas" laid down during the war for governmental purposes, and those covered by federations of, *e.g.*, football clubs. He had little difficulty in showing that for ordinary life the county has in most cases become archaic. He admitted, however, that a re-division into "natural regions" is easier for France, which has become less markedly industrialised, than it is for Britain.

The discussion was closured before the interest of the Section had shown any signs of flagging, but even so, the morning programme was greatly congested.

Miss Rodwell Jones read a short but instructive paper on the "Site of Westminster," in which she pointed out the geographical factors which first determined the situation of the town, and accounted later for its absorption by its more favourably placed neighbour. She said that the original importance of the site of Westminster seemed to have lain in the fact that it formed a sandy eminence rising slightly above the saltings of the Thames flood-plain at a bend in the river where the stream was probably fordable, and where there was an easy passage for boats. There could be little doubt that the Roman surface, which now lay some nine feet below high water, had stood originally at much the same height relatively to the level of the Thames as the actual surface did to-day. Whether this change of conditions was due to a gradual sinking of the Lower Thames Basin or to a gradual increase in the rise of tide as a result of embanking it was difficult to decide. Probably both influences had been at work. Thorney Island, on which the Abbey was built, was often spoken of as part of a delta formed by the Tyburn, but, geographically speaking, this was an unfortunate description, as it was not the habit of the Thames tributaries to form deltas. In almost every case the tributary stream entered the main river on the outer curve of a meander. The natural confluence of the Tyburn would seem to have been at the Westminster bend, in the neighbourhood of Whitehall. Once the stream had left the gravel-capped plateau, whose brink lay along Piccadilly and debouched into the flood-plain to the north of Buckingham Palace, its course might easily have been diverted again and again by accident or intention. It might at one time have joined the Westbourne, or its waters might have been turned into one or other of the numerous tidal creeks that drained the flats at low water. From the geographical point of view, the main interest in the site of Westminster focussed round the work of tidal river and tributary stream in controlling movement and settlement.

Colonel Towler followed with a paper on "Some of the Conditions Governing the Selection of an Aerial Route," which, together with two papers on the following day—one by Colonel Winterbotham on "Air Photography," and one by Captain Hamshaw Thomas on "Aeroplane Photo Surveys in the East"—showed, both by their contents and by

the audiences which they attracted, the importance of the new means of communication.

The main point in regard to Colonel Towler's paper was that it brought out the fact that when flying is developed as a means of communication in ordinary civil life, the routes followed will be as definitely fixed as are those of steamers on the great oceans, or those utilised by migrating birds. In other words, even with the "conquest of the air," the geographical factors will exert influence on aerial lines of communication to a much greater extent than is generally realised. In detail Colonel Towler pointed out that it was rarely possible to select a great circle route. The peculiarities of aircraft made it necessary to consider various factors, and the route giving the best average fulfilment would have to be selected. Thus safety, he said, was the first requirement, and to ensure it oversea flights should not, if possible, be longer than half the distance a machine could glide, without her engine, from the height at which it was customary to fly. A suitable number of landing-places should be available, so that in the event of engine-failure a machine would, at any time, be within gliding distance of at least one. Good and frequent meteorological information should be obtainable when required, so that risk of accident through sudden formation of fog and mist might be small. The second requirement was speed, and thus the distance from starting-point to destination should be the shortest available. In the event of a forced landing the telegraph and railway should be near, so as to be available to forward news immediately of the position and requirements of the aeroplane. Finally, the route should have a number of distinctive landmarks to help the pilot in his navigation by recognition of position.

Mr. Trevor-Battye then read a short paper, entitled "The Static Power of Melting Ice," and gave a longer address, illustrated by lantern slides, on Crete.

On Friday, in addition to the papers already mentioned, three others were read. Sir Alfred Sharpe gave a general account of Colonisation in Africa. Colonel Napier spoke on Persia, with special reference to means of communication, and Mr. E. A. Reeves read a short paper on some experiments which he has been conducting in connection with atmospheric electricity. The result, so far, has been to suggest that it may some day be possible to obtain a compass which shows the true and not the magnetic north. Mr. Reeves has found that, with a special piece of apparatus, a strip of paper, or other light material, when electrically charged and covered with a glass shade, coated with shellac varnish, if placed on a stand, and set up on open high ground, away from obstructions, will come to rest within a degree or two of the true north and south points. In exceptional circumstances the line indicated is approximately at right angles to this line—that is, true east and west; but still the connection is with the rotation axis of the earth, and not with the magnetic meridian.

# AN EPIC OF THE ANTARCTIC.

*(With Illustrations.)*

In the annals of Polar exploration, one might almost say in the whole history of geographical discovery, no more brilliant series of exploits can be found than those described in Sir Ernest Shackleton's account of the fortunes and misfortunes of the British Antarctic Expedition.[1] Shackleton's record at the time he set out on his last venture not only stamped him as a great explorer, but as a born leader of men, who in the past had risen superior to every emergency and triumphed over every difficulty. His last expedition has but enhanced his great reputation.

It may be recalled that the main object of the expedition involved a march from the contemplated winter quarters in Vahsel Bay at the head of the Weddell Sea in lat. 78° S., *via* the South Pole, to Cape Evans in M'Murdo Sound, situated in a similar latitude on the Ross Sea side. Two ships were thus required, one, the *Aurora*, to convey a party to the Ross Barrier, whose business it was to lay depots up to 83° S., in order to provide supplies for the trans-antarctic party during the final stages of this (as the crow flies) 1500 miles march, while the other vessel, the *Endurance*, was to carry Sir Ernest Shackleton's party through the ice-congested waters of the Weddell Sea to Luitpold Coast, where the main base would be established and the great sledge march begun. A large number of dogs were taken, also a motor sledge, which, although never used for the purpose for which it was intended, gave satisfactory results when tested on the less suitable sea ice. The *Endurance* left South Georgia on December 5, 1914, but, in a latitude corresponding to that of Peterhead, a zone of pack ice was encountered which in the heavy swell running could not be penetrated. After one or two futile attempts an easterly course was set along the northern edge of the pack, and on December 11th, after steaming through loose ice, the main body of the pack was entered in lat. 59° 46′ S. Now began a well-nigh unceasing struggle with the southern ice-fields which was to continue for the best part of a year, until the good ship, crushed and useless, had to be abandoned on October 27, 1915. Up to the end of the year (1914) the ship had come through 480 miles of ice, although the total steaming distance had exceeded 700 miles. Little open water was met with, which explains the somewhat devious course.

At noon on January 10, 1915, the *Endurance* was in lat. 72° S., long. 16° W., and thus close to the land (Coats Land) discovered by Dr. Bruce in 1904. At 5 P.M. land was sighted, and on the 12th the ship was close to an ice barrier in water of about 100 fathoms. A huge

---

[1] *South: The Story of Shackleton's Last Expedition, 1914-1917.* By Sir Ernest Shackleton, C.V.O. London: William Heinemann, pp. xxi+376. 88 Illustrations and Map. Price 25s.

We are indebted to the courtesy of the publishers for the loan of the accompanying illustrations.—Ed. *S.G.M.*

ice tongue, attached to the true barrier edge just beyond Bruce's "Farthest south," projected to the *north-west* for 48 miles, and on this promontory there was at least one possible landing-place, where the barrier came down with a gentle sweep to the sea. On the 15th the expedition came abreast of the northern edge of a giant glacier where there was a bay which would have made an excellent landing-place, but the ship pushed on southward, as every mile made by sea before going into winter quarters would reduce the distance to be covered on the trans-antarctic march. The *Endurance* steamed along the front of this ice flow for about seventeen miles, and on the 16th reached an even larger glacier overflowing from the ice sheet which appeared to be coming over low hills, estimated as being 2000 feet high, two miles inland. This immense glacier had a sea face over 40 miles long, and on its terminal edge was seen a broad band 6 feet in height caused by the rise and fall of the tides. This tide mark proved that there was no water under the barrier edge. On January 17th a blizzard from the north-east swept down, blowing clouds of snow off the land, here estimated to be 3000 feet high. The barrier cliffs ranged from 10 to 300 feet in height, except here and there, where the ice sheet swept down level with the sea. The new land was called "Caird Coast," and along with Luitpold Coast, immediately to the south, discovered by Filchner in 1912, forms a continuation of Coats Land, a name now applied to the region covered by all three discoveries. Along the whole length of the coast no bare land or rock relieves the monotonous covering of snow and ice, "but the upward sweep of the ice-slopes toward the horizon, and the ridges, terraces, and crevasses that appear as the ice approaches the sea, tell of the hills and valleys that lie below." On the 19th the ship was closely beset in latitude 76° 34′ S. and the long drift to the west and north began. A month later the *Endurance* reached the farthest south point of her drift, touching the 77th parallel of latitude in 35° W. In the interval—the height of the Antarctic summer—temperatures below zero F. had been touched on several occasions, the frost was unbroken, while long-continued north-east gales had filled the head of the Weddell Sea with pack, which the low temperatures had firmly consolidated into a compact ice-field. Occasional openings between the floes—could the ship have reached them—might have enabled the vessel to reach the contemplated winter quarters in Vahsel Bay, less than a degree of latitude to the south, but all efforts to break a way through were unsuccessful, and the approach of winter (there had been practically no summer) was shown by the departure of the seals and birds. On 24th February ship routine was stopped and the vessel became a winter station. As early as March 6th a temperature of 21° below zero F. was recorded and the new ice was over a foot thick. Although no land was ever seen to the west, the drift of the vessel lay over a continental shelf from the end of March until the end of July. The ship drifted to and fro so that the breadth of the shelf investigated varied from 40 to 70 miles. The shallow water ended abruptly a little north of latitude 73½° S., and instead of getting soundings of less than 250 fathoms, a cast made in about 72° S.

Caird Coast.

gave 1146 fathoms, increasing later to 1500 and then 1900 fathoms, as the ship drifted north. No trace was seen of the disputed Morrell Land, although in the unexplored area lying between the parallel drifts of the *Endurance* and *Deutschland* there is room for a large low island or a cluster of small ones, as suggested by Ross. The first indications of the ice pressure, which in the end was to prove so disastrous to the ship, were noticed on April 3rd, when the young ice was rafted 8 or 10 feet high, and again on several occasions towards the end of July heavy pressure was experienced, but no damage was done. On August 1st several hard nips occurred, and on the 3rd the ice, as far as the eye could reach, was in a state of chaos, with very large pressure ridges in all directions. Towards the end of September the roar of the ice pressure increased, and on the last day of the month the ship sustained a terrific squeeze, but under the pressure she rose and was still seaworthy. The beginning of the end came on October 24th, when so overwhelming was the ice pressure that "the ship was twisted and actually bent by the stresses" and began to leak dangerously. Three days later, after sustaining a series of tremendous crushes, the *Endurance* became enveloped in a veritable maelstrom of grinding floes; the gallant vessel was irreparably crushed, and had to be abandoned in lat. 69° S. long. 51½ W., after drifting 570 miles in a northerly direction during the 281 days of besetment. The total drift through all the observed positions was no less than 1186 miles, "and probably we actually covered more than 1500 miles." Throughout the drift important and, in many respects, unique scientific work was carried on. Wordie made continuous observations of the physical conditions of the sea and of the sea ice; James carried out a series of magnetic observations, and assisted Captain Worsley with the astronomical work (which later examination showed had been remarkably accurate), for the determination of the ship's position; Hussey was busy in attending to the meteorological records; and Clark never lost an opportunity of making systematic collections of biological material from the surface to depths of more than 400 fathoms. It is unnecessary to recapitulate Sir Ernest Shackleton's achievements during the momentous period that followed the loss of the *Endurance* until the final rescue, nearly ten months later, of the 22 men stranded on Elephant Island. The fact may be emphasised, however, that not once, but a score of times, it was Sir Ernest's personal courage and resource, combined with a singularly penetrating vision of the potentialities of each desperate situation as it arose, that enabled him in the end to send the welcome and inspiriting message from Punta Arenas, "All saved, all well." In Chapters V. to IX. are described some of the most thrilling and soul-stirring situations ever experienced in Polar waters. The adventures of the ice-wrecked party on the floes; the boat journey from the ice to Elephant Island; Shackleton's great journey with four men in an open boat from Elephant Island to South Georgia through 800 miles of the storm-lashed waters of the sub-antarctic ocean; the 36 hours' march across the treacherous snowfields of South Georgia; all abound in episodes which add testimony to the pluck, foresight, physical endurance, and supreme self-sacrifice of

The end of the *Endurance*.

the leader of the Expedition. Not less thrilling is the account of the daring mid-winter attempts of the leader, ultimately crowned with success, to relieve the men on Elephant Island.

Throughout the work Sir Ernest Shackleton gives generous expression to the sterling qualities shown by the *personnel* of the Expedition in the face of the well-nigh hopeless situations that so often arose. The calmness and resolution of Wild, the accuracy of Worsley's "dead reckoning" in most difficult circumstances, the undeviating cheeriness of Hussey, and many other glowing tributes to other members of the party are freely given. Shackleton also pays a tribute to the marked ability shown by Captain Stenhouse, the commander of the *Aurora*, in his handling of the ship during her ten months of besetment in the Ross Sea area.

The adventures of the Ross Sea section of the Expedition and the drift of the *Aurora* are fully described in the concluding chapters of the book, and, despite the severe handicap occasioned by the breaking away of the vessel from M'Murdo Sound with much essential gear on board, the special programme—which was to lay a line of depots up to the Beardmore Glacier for the trans-antarctic party—was successfully carried out in the face of well-nigh insuperable difficulties. The long southern marches with sledges, mostly man-hauled, under the leadership of Captain Æneas Mackintosh, thus achieved the object of this side of the Expedition. Spencer Smith died of scurvy, "suffering but not complaining," after having been dragged for 40 days through deep snow and blizzards by his comrades, whose plight was but little better than his own. Mackintosh and Hayward lost their lives by being swept away to sea on thin ice during a blizzard while attempting to cross from Hut Point to the winter quarters at Cape Evans, after having gone through months of hardship and toil. The last chapter of the book is devoted to the war services of the members of the Expedition, practically all of whom enlisted after returning to civilisation. Three were killed in action and five wounded, so that the casualties were "fairly high." The appendices by Messrs. Wordie, Hussey, James, and Clark give a foretaste of the important scientific results of the Expedition, which are now being worked out in detail. The numerous well-selected illustrations add much to the interest of the narrative, and there is an excellent map and a good index.

R. C. M.

---

## PROCEEDINGS OF THE ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.

### Presentation of the Society's Gold Medal.

At the opening meeting of the session, 1919-20, held in the Usher Hall on December 3rd, Field-Marshal Earl Haig was presented with the Society's Gold Medal. The presentation was made by the Hon. Lord Salvesen, President of the Society. In making the presentation Lord Salvesen said :—

"As the newly elected President of your Society it has fallen to me to present on your behalf to Field-Marshal The Right Hon. Earl Haig of Bemersyde the Society's Gold Medal. Since 1890 this medal has been bestowed on eight occasions on men like Stanley, Nansen, and Bruce for remarkable explorations, and on others like Professor James Geikie, Professor Penck, and Dr. Scott Keltie for distinguished services to geographical science. On this occasion the recipient's merits are not mainly connected with exploration or geography, although he directed and supervised the preparation of one of the most valuable maps that has ever been made and one which possesses an historical interest that is without parallel, I mean the map of the British front on 25th September 1918, the eve of the victorious offensive that ended the great war. I am glad to be able to announce that Field-Marshal Haig has been good enough to present to the Society a copy of this map,[1] which I can assure him will be regarded as one of our chief treasures. It shows the disposition not merely of the troops of the Allied Forces just before the offensive commenced, but also of the Germans opposed to us, the collated result of thousands of aerial and other observations made, from day to day, during the period that preceded the victorious forward march. It never went further, for the advance was thereafter so rapid as to baffle the map-makers. In bestowing the Gold Medal of the Society for 'distinguished services' without any addendum, the Council have broken with all precedent, but they make no apology for having done so. The distinguished services of Field-Marshal Haig require no explanation and no eulogy; they are known all the world over. His name without prefix or affix, without title and without description, will be classed with those of the great conquerors of past ages. They are written in letters of fire on the pages of history, and will survive as long as history is read or tradition endures. We are proud indeed that this name should be that of a Scotsman, the scion of an ancient Lowland stock. The ancestors of Field-Marshal Haig must have had rare qualities of persistence and tenacity when centuries ago the prophecy could have been made that is embodied in the well-known couplet:—

'Come weel or woe, whate'er betide,
There'll aye be Haigs of Bemersyde.'

But it was never foretold that one of that ancient line was destined to shed lustre not only on the family from which he sprang, or on the country of his birth, but on the empire to which he belongs, and whose freedom and independence he was a chief instrument under Providence of preserving for us and those who come after us. We are grateful to him for the calm courage and balanced judgment with which he conducted the greatest military adventure in which British Armies have ever been engaged, under a strain which no previous General has had to bear and which would have broken the fortitude of all but the truly

[1] This map, which has been framed, is now on view in the Society's Rooms, Synod Hall, Edinburgh, together with another, also presented by Lord Haig, which shows British Battles during 1918 (8th August—11th November).—Ed. *S.G.M.*

great. We admire the brilliant strategy, the outcome of years of patient study, which crowned the closing chapters of the great war and had from time to time illuminated the costly and dreary process of enemy attrition. We revere his qualities as a man as much as we admire his greatness as a leader. In token of that gratitude, that admiration, and that reverence which every member of this Society feels, I now desire you, my Lord Haig, to accept the highest honour which it is in our power to bestow."

The presentation of the Medal was then made amid cheers, the large audience upstanding. In acknowledging the Medal, Earl Haig said "he most deeply appreciated the very high honour they had done him. It was a distinction which he feared he had done very little to merit. He accepted the Medal very gratefully as a tribute, less to any accomplishments of his own in the advancement of geographical knowledge than as a recognition of the splendid achievements of the Armies in preserving to them the world as they knew it and as their fathers handed it down to them. As far as his own actions were concerned, if he included therein actions for which he was directly responsible, he felt that he deserved rather the reprobation than the acclamation of a body such as theirs; for such contributions as he had made at all to the study of geography had been of a highly destructive order. On the other hand, the Army as a whole, and he as the representative of the Army, during the war owed very much indeed to geography and to those who had made it their study. He took the word in its largest sense and in all the applications of its science, and in every theatre of war they found it of service to the fighting forces. So far as the western front was concerned, the extraordinarily high development of the art or science of map-making—he scarcely knew which to call it—was one of the marked features of the war, and one which exercised a material influence upon the employment of artillery. In the more general sense, the influence of geography upon war had always been of paramount importance, so that every soldier perforce must in some small way be a student of geography. Perhaps he might claim that as some excuse for his presence there that night. He would rather find his excuse, however, in what he had already said—namely, that the honour they did him was directed to the Army even more than to himself. If further excuse was needed he found it in the opportunity the occasion gave him to acknowledge the great services rendered to the Army by those who had made geography their study. He gladly took that opportunity, and once more he thanked them for the great honour, which he would always very greatly prize."

Before the presentation of the Medal, Sir Arthur Steel-Maitland delivered a lecture on "The present economic condition of the country, with especial reference to international trade."

## GEOGRAPHICAL NOTES.

### EUROPE.

**The "Edinburgh" Number.**—In the autumn *Geographical Teacher* there appears an appreciatory notice of our "Edinburgh" issue. In the course of the note the suggestion is made that the number might be developed into a Local Handbook for the British Association Meeting in Edinburgh next year, and might, by its sound geographical basis, serve to mark a step in advance in these publications. It is further suggested that Section E (Geography) should take an active part in the preparation of such handbooks, and that they should be issued to the general public as well as to members of the Association.

In connection with the number we may add that the possibility has been suggested that a corresponding issue devoted to Glasgow might be prepared during the present year. The Editor would be glad to hear from any one interested and able to contribute in any way to such a publication.

On p. 316 of the "Edinburgh" number, in the article by Messrs. William Cowan and Harry R. G. Inglis on "The Early Views and Maps of Edinburgh," a request was made for any information as regards the source of the picture which forms plate F in the issue. Mr. Inglis now informs us that Mr. Chubb, of the Map Room, British Museum, has traced the picture, which is from "*Libellus Novus Politicus Emblematicus Civitatem*, Pars Septima." By D. Meisner, Nürnberg, 1700.

**French Vital Statistics.**—Tables of births and deaths for the departments of France not directly affected by the operations of war, are now available for the year 1918, and show, as compared with 1917, a progressive diminution of the population. The departments concerned number 77, and whereas in 1917 the decrease in population was 268,838, in 1918 it was 389,575. But the number of births showed a slight increase, and the total loss is due to the high death-rate of the second half of the year. This was apparently due to the influenza epidemic, which is estimated to have caused the deaths of approximately 200,000 persons among the civil population.

**The Future of Italy.**—M. Ch. Seignobos, of the Sorbonne, Paris, contributes to the December number of *Scientia* an article on the past and future of Italy which, if perhaps more optimistic than the conditions at the moment seem to warrant, may yet serve as a corrective to the pessimism which prevails in some quarters. The author begins by pointing out that twice in her history Italy has been in the van of civilisation: at the end of the Ancient World, when she founded the type of culture upon which the life of Europe is still based, and at the end of the Middle Ages when she broke new ground alike in world commerce and in painting and music. For three centuries her national progress has been arrested by a combination of disastrous conditions, and to-day admiration for past achievements is apt to obscure for most her recent

great advances, especially in the domain of industry. The growth of modern industry in Italy has been hampered by three unfavourable geographical circumstances: an area small for a great power; poverty in coal and metals; a position in an angle of the Mediterranean, remote from the great highways. As advantages, however, she has her apparently inexhaustible man-power and a high average of intelligence and inventive power combined with technical and artistic skill.

The next point is to consider the effects of the war. M. Seignobos sums these up for the four Western allied nations as follows. Britain has gained by the destruction of the German fleet and of the German Colonial Empire. France and Belgium have been liberated from the menace of Prussian military power, while for Italy the war has meant the fall of the Austrian and Turkish Empires. In consequence Italy has gained new markets for the products of her industry, and new outlets for her man-power, while new nations will look to her for the material basis of civilisation. The Eastern Mediterranean generally, and especially the Balkan Peninsula and Asia Minor, open out for her the opportunities which she sought in vain in North Africa. As to Asia Minor, the author regards the Turk as inert, both economically and intellectually, and thinks that the mineral wealth of the plateau should therefore be developed by Italy. The Greeks are limited to the western coast, and since there they are chiefly agriculturists or engaged in minor commerce, there is no reason why they should not work in collaboration with Italy, who can supply industrial products to the Greek traders. The southern coast is fertile but deserted, and here there are opportunities for Italian colonists. M. Seignobos does not hesitate also to suggest that Italian influence may spread over a wider area than that indicated.

As to the Balkans he speaks with some frankness. The economic dominance of Austria has disappeared, and, whatever may be the case at the moment, he considers that the Italians are too intelligent to go on attempting to imitate Austrian methods. "Economic and intellectual mastery, the only kind which henceforth will have any practical and durable importance, cannot be obtained by police operations. To open the Slav countries of the Balkans to the products of their industry and to the influence of their ideas, the Italians dispose of incomparably more efficacious agents—their engineers, their commercial men, their workmen, their cultivators, their writers and their artists. It is they which in the Balkans, as in Asia Minor, in Syria and in Africa, will gain the indigenous peoples for Italian civilisation."

**Utilisation of the Rhone.**—Great attention is being given in France at the present time to the question of the fuller utilisation of the waters of the Rhone, from the triple point of view of navigation, irrigation, and water-power. A number of articles on the subject have appeared in French and other journals, among which mention may be made of one by M. Pierre Clerget in the *Revue Générale des Sciences*, while another is contained in a recent issue of *The Times* Trade Supplement.

In the Upper Rhone, that is the section from Geneva to Lyons, the question of water-power predominates: nevertheless navigation is also important. Before the war, as was well known, food-supplies for Switzerland were imported either *via* the Rhine and Rotterdam, or through Genoa. During the war the traffic passed through France, and the proposal is that a through waterway should be constructed from Marseilles to Geneva which would enable France to capture this Swiss trade permanently. Various detailed schemes have been put forward, which involve Swiss co-operation and may necessitate the raising of the level of Lake Geneva. As regards the water-power of this section, it is recognised that the area immediately adjacent has the first claim upon the available force, but the city of Paris is expected to collaborate in the schemes, and part of the power will be transmitted to that city in order to meet its urgent needs in the matter of power and light.

In the lower section of the river, the important points are improved navigation and irrigation, but considerable resources in the way of power are also available. The question of irrigation is particularly interesting. Provence is of course very fertile, but owing to the Mediterranean climate irrigation is necessary, at least near the mouth of the river, for all crops save the vine. The importance of the Durance as a source of irrigation water is familiar, but the new schemes will give greater possibilities, and will have the further advantage of promoting simultaneously the interests of industry and agriculture.

## Asia.

**Northern Mesopotamia.**—Under the title of "The Ancient Piedmont Route of Northern Mesopotamia," Miss E. C. Semple contributes to the September issue of *The Geographical Review* a very elaborate article on the part played by this region, throughout the whole course of history, as a great line of communication. The object is to show that through all the changes which have occurred the same geographical factors have been in action, with the result that history has constantly repeated itself.

Mesopotamia, in the broad sense—that is, the lowlands between the Tigris and Euphrates—is of course an example of a great structural trough lying between folded mountain ranges and an old plateau; structurally it is thus comparable to the Indo-Gangetic valley, though the geographical differences are great. In the case of Mesopotamia the mountains lie to the north-east and north, in the chains of Persia and Asia Minor: while the Syrian and Arabian deserts to the south-west overlie the ancient plateau. A special feature, however, which has had much influence on history, is the long crack in the earth's crust which, beginning in the Syrian hollow, is continued by the Jordan valley and the Dead Sea, and then widens into the Red Sea, while beyond it merges in the Great Rift Valley of Africa. The effect of this crack, as Miss Semple very clearly brings out, is to cause lines of communication between the Levant and the Indian Ocean to be pushed to the north or south ends of the Syrian belt of fracture. It is true that to-day the great

line of communication goes through the Red Sea, *via* the Suez, and thus actually follows the line of the Rift. But, till the invention of steamships, the upper end of the Red Sea, with its stormy winds, its coral reefs, its inhospitable coasts, was all but useless, and the great trade route was up the Nile to Thebes and then across the desert to a port in the lower part of the Red Sea. The circuitous nature of this route made the northern gateway, and then the land route through Mesopotamia to the Persian Gulf, of far more importance as a means of connecting the Mediterranean with the treasures of the Ind.

To the characters of this northern gate, which she calls the Syrian Saddle, Miss Semple devotes much space. It lies where the Gulf of Alexandretta drives a wedge into the Syrian Coast, for here the coastal chain diminishes in height, and what is even more important, is single. Farther south, not only is the coast inhospitable and devoid of good ports, but the presence of the Rift means that the double rampart of Lebanon and Anti-Lebanon, with the intervening valley, has to be crossed. Still farther south, though the hills are not so high, the ascent of the plateau, the drop to the Jordan or the Dead Sea, and then the ascent of the heights of Moab, present great difficulties. Further, even when the coastal obstacles are successfully negotiated, the greater difficulty of the desert remains beyond.

On the other hand, at the Syrian Saddle, not only is the mountain belt low and single, but the country between the western bend of the Euphrates and the hill barrier is a grassy plain, with a fair rainfall, and with the possibility of irrigation from the multitude of small streams which come down from the mountains. This was for the ancients the Naharina, or "land of rivers."

The actual crossing of the Amanus range at the Saddle may be effected by any of three natural gaps, all of which have played their part in history. The most northern, the Amanus Pass, is that chosen by the Baghdad Railway ; but Miss Semple ascribes its utilisation to the German fear of bombardment from the sea by the British fleet if the more direct Syrian Pass, just behind Alexandretta, had been used. Forty miles south of Alexandretta the Orontes cuts a passage to the sea, and the ancient Antioch shows the importance of the gap here.

Once across the Saddle, by any of these three gaps, what route will naturally be followed to the Persian Gulf? At first sight it would seem as if the Euphrates, which bends towards Alexandretta Bay, would naturally form a route. Miss Semple, however, shows, historically, that it has hardly ever been so used, and, further, that it is geographically unsuited to form a line of advance—for the river, confined in its narrow, steep-sided valley, flows through Mesopotamia but does not water it. Desert routes there were, utilised on a small scale, but she has no difficulty in showing that throughout history, from the time of Alexander the Great to the construction of the Baghdad Railway, the line followed has been what she calls the Piedmont Route, the region where the hills sink to the plain, that is the belt marking the limits of irrigation from the hill-streams, the limit also of the upward extension of the desert in the dry season. This natural highway runs in a

generally eastern direction from Aleppo to Mosul, and the stations on the railway to-day are names which meet us at the dawn of history, cf. Carchemish (Jerablus), Harran, Ras-el-Ain, Nisibin, and so on. The possibilities of irrigation all along this belt made it possible for a string of towns to arise, each with its gardens, its vineyards, orchards and fields, while, whenever a strong government prevailed, the towns were enriched by the constant traffic which passed back and forward here between the Mediterranean world and the East. The remainder of the paper contains an interesting account of the history of the area from the earliest times and the constant warfare for control of the route. At the end Miss Semple adds a note on Cyprus, which she compares to a hand pointing a pistol at the Bay of Alexandretta and the Orontes mouth. Always, she says, those who have had designs upon the Syrian Saddle have tended as a preliminary to seize the island.

## Africa.

**The Domesticated Ostrich.**—Prof. J. E. Duerden, of Rhodes University College, Grahamstown, is contributing to the *Revue Générale des Sciences* a series of articles on the African ostrich, which, though largely zoological, contain some facts of geographical interest.

Though ostrich feathers have been prized from very early times, and the wild animals have in consequence always been an object of the chase, domestication is very recent. In South Africa it only dates back some fifty years, and Professor Duerden claims that nowhere else has it been really successful. The animals have been introduced into Arizona and California in the United States, into Australia and New Zealand, but the feathers obtained from the farms in these countries are stated not to possess the value of the South African product. So-called domestication has been practised in North Africa for a long period, both by Arabs and by native races, but the adults have never been tamed, and the stocks are replenished by the capture of young birds from the nest. In South Africa relatively little has been done in the way of selective breeding, though great care is given to ensuring that the birds are adequately and sufficiently fed. It is found that unless the food is both rich and abundant, the quality of the feathers falls off.

Since it appears from old chronicles that when all feathers were obtained from wild birds, these coming from the North African ostrich were more prized than from the southern bird, it was conjectured that the South African breed might be improved by crossing. In consequence the Union Government some years ago sent a Commission to the north to obtain some birds of fine plumage for breeding purposes. The result was the importation into South Africa of 132 birds from Nigeria, which were taken to the School of Agriculture at Grootfontein. It soon appeared that these birds were not superior to the best Cape ostriches, though it is possible they may be useful in improving certain of the characteristics of the feathers. There is a marked difference between the two birds, though, as they cross freely, the question as to whether there is a true distinction of species is difficult to decide.

In North Africa the feathers are plucked from the birds, but in the ostrich farms of the south they are carefully cut as soon as they are fully mature, the cut ends of the quills being left in position. These cut quills are removed about two months later, that is as the time of the moult approaches, the farmer thus ensuring that the new feathers form all at once, instead of irregularly as occurs in nature. The abundant food supplied further induces the domesticated bird to lay at the age of two to three years, as compared with four to five in the wild bird; otherwise the changes of form or function produced by the short period of domestication seem slight. Professor Duerden, however, points out possible lines of selective breeding which may lead to an improvement in the stock. The feather trade has suffered considerably from the long duration of the war, but it is hoped that with an improvement in the economic situation it will again increase.

**Mauritius.**—Last year M. P. Carie lectured to the Paris Geographical Society on this island, and his paper, accompanied by a map and some illustrations, appears in *La Géographie*. The main purpose of the lecture was to draw attention to the claim put forward by certain of the French inhabitants of the island that it should be returned to France, and M. Carie was one of seven delegates appointed to present the case of the memorialists to the two governments concerned. The paper is one of much interest, though the account of the composition of the population which is given shows the difficult problems involved in the proposed transfer. About three-quarters of the total are Hindus, the figures given being—Hindus, 270,000; these of French descent, pure and mixed, 40,000 to 50,000; Africans of varied type, 50,000; there are also several thousand Chinese, and the small British colony, consisting of officials and officers. The negroes are descended from imported labourers, and the memory of the days of real or disguised slavery has alienated them from the land: they are fishers, workmen, sometimes skilled artisans, servants, and so forth, and are very poor. The Hindus were called in to do the work of cultivation when the negroes failed after the abolition of slavery, and have settled in the island. Of the present total only some 50,000 to 60,000 are immigrants; the remainder are island-born. They display marked land hunger, the ambition of all being to possess a patch of land, a few goats, and a cow. Already they own nearly one-half of the cultivated land, and grow sugar in plots for the factories over an area larger than that covered by the estates of the planters. The proprietors of French descent have shown what the author regards as a disastrous willingness to sell their lands at a high price to the Indians, and it is feared that the predominance of the Indian element may result in agitation for union with India.

Sugar is, of course, the main product, and if the island price had corresponded to that of the world market, the war would have been a period of unprecedented prosperity. But the Royal Sugar Commission requisitioned the crop, at prices varying from 16s. 8d. to 18s. per hundredweight, while all the materials used in the factories have had to be bought in the home market at war prices. Thus the planters have

made practically the same profits as before the war. One effect seems to have been new attempts to grow the coconut palm on a large scale, for the price of copra (for margarine) has, of course, increased enormously under war conditions. Many other crops can be produced, but economic difficulties in most cases prevent large production. Thus manioc grows well, but it is not possible to export tapioca ; the reason being that France is the chief market for this commodity, and the French market is protected for the sake of the tropical colonies.

**German South-West Africa.**—To *Colonies et Marine* for August last M. Robert Pimienta contributes an article on the former German colony of South-West Africa, which is illustrated by two sketch-maps and a large number of figures. The article includes an extensive bibliography, and gives a short history of the colony, in addition to a detailed geographical description. The account emphasises once again the barren nature of the land, and the extremely unfavourable nature of the climate. The region not only suffers from very severe drought, but, like tropical deserts in general, shows great variation in temperature between day and night, which makes it specially trying for Europeans. In addition violent winds are frequent, and insolation is so strong that Europeans can only survive with special precautions. Among these an important one is the need for constant changes of clothes, and this was one of the difficulties with which the German troops had to contend in their conflicts with the natives. Where water can be obtained, however, from deep wells or artesian sources, various vegetables, the vine and tobacco, can be grown. Attempts to introduce European domestic animals have apparently not met with success.

## America.

**The Position of Wineland.**—It will be remembered that Dr. Fridtjof Nansen, in lecturing before the Society in the year 1911 on the Norsemen in America, gave it as his opinion that though the Norsemen discovered America, and had intercourse with the land and its natives, yet the narratives of their discovery, and especially the accounts of the journey to Wineland, are legendary. This conclusion has not met with universal acceptance, having been opposed both upon philological and other grounds. Professor H. P. Steensby, of the University of Copenhagen, has recently reinvestigated the whole subject from the geographical standpoint. His results are published in English in a pamphlet entitled *The Norseman's Route from Greenland to Wineland* (Copenhagen, 1918), which is illustrated by three clear sketch-maps, and some views of the scenery along the supposed route of the Norsemen.

The discussion is based upon Eric the Red's saga, and the object is to find places which correspond to the descriptions of the saga, and especially to determine the position of Wineland, supposed mythical by Nansen. The discussion is one of great interest, and the main points may be summarised as follows :—

The first point which requires explanation is the fact that Karlsefni, though he started from the Eastern settlement in Greenland, sailed north to the Western settlement before beginning his journey to Wineland. Dr. Nansen regards this as impossible, and as affording proof of the mythical nature of the story. But the ice conditions, the winds and currents, all make it far easier to cross Davis Strait high up than in the region of the Eastern settlement, while the fact that the Strait narrows to the north must have been an attraction to the Norsemen who, whenever possible, preferred to skirt coasts. From Davis Strait Professor Steensby believes that the Norsemen sailed south till they came to the north-east coast of Labrador, the Norse Helluland. This coast presented no attractions, being bare and stony, without either grasslands or forests. Professor Steensby believes, therefore, that the party followed the coast down to the Strait of Belle Isle, and touched the extremity of the northern peninsula of Newfoundland, the Bear Island of the saga. Afterwards he considers that they skirted the continental side of the Strait, which would make the south coast of Labrador the Markland of the saga. More precisely, he considers that Markland was that part of the coast of Labrador which extends from the beginning of forest growth near the Strait of Belle Isle to Cape Whittle, where the coast undergoes a change. Beyond Cape Whittle the shore becomes sandy and desolate, but the special point is that Professor Steensby believes that the Norsemen sailed on into the St. Lawrence Estuary, without recognising that they were entering a river valley. The Furdurstrand of the saga he believes to be the coast from Cape Whittle to the entrance of the Saguenay River, and that river and the St. Lawrence the fiord-indented coast of the poem. This makes the St. Lawrence the Straumfjord, while Hare Island is Straumey, on which the party wintered. From Hare Island Karlsefni and his companions journeyed southward till they came to the place they called Hop, where there was a river which entered the "sea" through a lake, and where were found the self-sown corn "where the ground was low-lying and swampy, but vines where the ground rose slightly." Hop Professor Steensby identifies with the little town of St. Thomas, also called Montmagny, which lies on the Rivière du Sud, and corresponds in a number of ways with the description of the saga. This would make Wineland the south shore of the St. Lawrence Valley, the region where deciduous trees and bushes like the vine, advance extraordinarily far to the north. As regards the self-sown wheatfields nothing definite can be said. The "wheat" may have been maize, though this is regarded by Professor Steensby as improbable, and in this connection it is at least interesting to note that in the St. Lawrence Valley cultivating Indians advanced unusually far to the north. It may have been water-rice or some other kind of wild grass, and we find that Cartier and other later discoverers speak of "self-sown corn" in Newfoundland and several other places round the Gulf of St. Lawrence. As regards the vines, Cartier found so many growing wild in the adjacent Isle d'Orleans that he called the island Isle de Bacchus. The author has found no specific mention in any book of wild vines round St.

Thomas, which is now an area under high cultivation, but since the region lies south of the north part of the Isle d'Orleans there is no reason to suppose that they did not once grow there.

Whether Professor Steensby's views be accepted in detail or not, his paper is one of great interest, and his identifications are carried out in great detail and with much ingenuity.

## Australasia.

**Christmas Island.**—It is announced that the Pacific Christmas Island, which lies south of Fanning Island, is to be annexed to the Gilbert and Ellice Islands Colony, instead of being, as hitherto, an independent possession. This island, which was annexed in 1888, should not be confused with the more important island of the same name, which is in the Indian Ocean, south of Java, and has extensive phosphatic deposits.

## General.

**The Economic Factor in the War.**—Dr. Charles A. Burky lectured to the Geneva Geographical Society, in March 1918, on this subject, and his paper appears in a recent issue of *Le Globe*. The main thesis, which will be readily accepted, is that it is in the realm of economics, rather than in diplomacy or politics, that the cause of the conflict is to be sought, and that, further, its course and developments have been determined in the same way. The paper is interesting, however, not so much in its main thesis, as in the way in which this is elaborated. It is illustrated by a large number of diagrams which are suggestive although rough.

Dr. Burky begins with a discussion of the distribution of population in Europe, pointing out that the belt of dense population runs from the north-west (Britain) across Central Europe in a south-easterly direction, that is to the peninsula of Italy, while to the north-east (in Russia) and the south-west (in Spain) the density thins out notably. But one cannot assume anything in regard to the pressure of population from these facts. In point of fact, emigration tends to be greater from the thinly-peopled States than from those where the density is high. The reason is, of course, that the thinly-peopled States are, broadly speaking, predominantly agricultural, and the agricultural States of Europe have reached saturation point so far as population is concerned. The reasons for this the author does not discuss, which leaves, we think, a blank in his argument; for the recent history of Europe can scarcely be understood without consideration of the effect upon its economic life of the development of the new agricultural lands across the seas. Nor, further, is it, we think, possible to see the problem whole without realising that the Eastern United States no less than Eastern Canada, are in the same economic position as Europe in so far as agriculture is concerned, while the lands of the West have not yet reached "saturation point" as regards their rural population.

Leaving aside this aspect, the author emphasises the fact that, save

France, all the Powers of Europe are faced with the problem of absorbing their increasing population, and all are clear that this can only be done by industrial development. But not all the States are favourably placed for the growth of industry, and it, in its turn, brings new problems to light. Thus the industrialised country is faced with a more complicated food problem than even the poor agricultural one; the question of fuel and raw materials is very important, and uncontrolled access to the great routes of communication is vital. Taking it as axiomatic, then, that all the powers, before the war, were endeavouring to follow the same road, the author divides them into the satisfied, those which possessed sufficient fuel, easy access to food and raw materials, and to the great highroads, and dissatisfied, those to which one or other of the essentials was lacking. In the former group he places the United States, Britain, Portugal ("a simple annex of the British Empire"), and France. Among the unsatisfied he places Germany, Austria, Italy, the Balkan States, Russia, and Japan ("stifled in her island in front of a China both rich and extensive").

With this as starting-point the author follows the various operations of the war, and traces the economic motives which determined these. In connection with this part of the paper it is of interest to note that he ascribes the world shortage of necessities rather to the profound changes produced in the distribution of exporting and importing countries (cf. the note below on the World's Sugar Supply), than to the reduction in the world's tonnage.

In his final summary—the paper, it will be remembered, was read before the Armistice—the author discusses the probable peace terms in the event (1) of an Allied victory, (2) of a Germanic victory, and (3) of a patched-up peace, and comes to the conclusion that since all the members of the Quadruplice fall into the unsatisfied group, they could not count upon the apparently favourable appearance of the war-map at the moment of writing. "In spite of the present respite, the future towards which its members have to look is dark," for "sooner or later they will have to reckon with the crushing economic superiority of the Entente." The subject is left there; but it is obvious that if the war was fundamentally due to an attempt on the part of the Central Powers to escape from a difficult economic position, and that attempt has failed, then the world is still faced with an unsolved problem—the problem which caused the war. If, further, all the nations can only absorb their natural increase of population by becoming industrialised, and if successful industry involves control of food supplies, of raw material, of the world's highroads, and of fuel or industrial power, then surely it is not only for the defeated belligerents that the future looks dark.

## Economic Geography.

**The War and the World's Sugar Supply.**—The study of the production and consumption of sugar during the war period throws an interesting light on the complex causes of the world shortage. Some figures given in a recent issue of *The Times* "Trade Supplement" are

suggestive in this connection. In 1913-14 the total world production was about 373 million cwts., and by 1917-18 this had dropped to 350 million cwts. The fall in consumption was less, but this was because old stocks remained to be absorbed, and further the fall was not uniformly distributed, for Germany actually increased her consumption by nearly 2½ million cwts. during the war period. Similarly the fall in production was irregular, for America increased her output, while in Europe the fall was from 160 million cwts. to 87 millions only.

The effect of war conditions on some of the sugar-producing countries of Europe is illustrated by the following figures. In 1913-14 Germany produced over 54 million cwts., and as her consumption was about 28½ million cwts., she had available for export nearly 26 million cwts. But, with the closing of her best markets, we find that by 1917-18 her production had dropped to such a figure that she practically absorbed the whole of her own product; as a factor in the world's supply she ceased to count. It is not expected that her production in 1918-19 will be more than 16-17 million cwts., and even this total is dependent upon obtaining sufficient coal. She will thus be unable even to supply her own needs, and has during the war changed from a producing to a consuming nation so far as the world-market is concerned. Further, though her diminished production is in part due to the loss to Poland of the sugar-growing areas in Posnania and West Prussia, her loss has not been Poland's gain, and the latter is already competing in the world market for Cuban sugar.

Taking France next, we find that before the war the sugar-beet areas of North France and elsewhere supplied the home market and left a small margin for export. With the enemy occupation of the northern departments the home production dropped to about 28 per cent. of the pre-war figure, and although consumption was reduced France became a large importer.

Russia, again, before the war, did not produce quite enough for her own needs, and was an importing country, if on a somewhat small scale. By 1917-18 her production had decreased notably, but next to the United Kingdom she showed the greatest percentage decrease in consumption, and in that year her production and consumption balanced. This was no doubt due to the fact that it was practically impossible for her to reach the sugar market of the world.

America, as already stated, has increased her production, and the rise, which has occurred chiefly in Cuba, is proceeding steadily. Indeed, at the present time, only four areas in the world have any considerable amount of surplus sugar, and of these three are tropical, *i.e.* are producing cane sugar. These are Cuba, Java, and the Philippines, a fact which suggests that in the near future cane sugar is more likely to be available than beet. This is a part of the shift of food production from temperate to tropical latitudes which was beginning before the war, and has been much accentuated by the war. The replacement, in temperate Europe, of butter as a common article of diet by margarine, largely made of tropical fats of vegetable origin, is another indication of the same change.

At the present moment only Bohemia seems likely to have a considerable surplus of beet sugar, and this depends upon the solution of the coal problem. Austria, Hungary, and Belgium are likely to be importers, not exporters, and Italy can only supply her own needs.

Though the sugar-cane and the sugar-beet are the main sources of commercial sugar, they are not, of course, the only ones. In India large amounts of sugar are obtained from various palms, especially the Palmyra palm, the product being called jaggery. Attempts are now being made to increase the production of jaggery in Ceylon, and to improve the quality, while there is also a scheme under consideration to increase the acreage under sugar-cane there. Since further many plants produce large amounts of sugar at some stage of growth, it is possible that other sugar-producing plants may yet be cultivated on a large scale. The United States Agricultural Department has been experimenting with maize and the sugar-millet (sorghum). Very satisfactory results have been obtained with maize, which yields more sugar per acre than sugar-beet, with less labour. The fact is of considerable interest, for maize will grow through a wide range of climate, and is a less exacting crop than sugar-beet. According to *The Near East* France is interesting herself in the question of obtaining her supplies of sugar from the maize which is grown so abundantly in south-eastern Europe.

**Water-Power in France.**—The shortage of coal in France during the war period, according to *La Géographie*, has led to increasing attention being paid to the country's resources of water-power. Great development of hydraulic force hardly dates back further than the Grenoble Congress of 1902, but to-day the valley of the Durance has become an industrial region of the first order. Recent surveys suggest that France is the richest of all European countries in potential water-power, the total being estimated at 8,000,000 H.P. as against 7½ millions for Norway, and 6¾ for Sweden, while the British Isles come at the foot of the list with under 400,000 H.P. But even now only some 20 per cent. of the French potential power is utilised, and of this total considerably more than half has been—or is being—made available since 1916. As was to be expected, the Alps predominate as the region of hydro-electric installations, the Central Plateau coming next. The Government is taking great interest in the question, and developments are to take place along the lines of reserving the supplies of coal for heat-production, while power and light are to be supplied, so far as possible, by hydro-electric works.

# NEW BOOKS.

## EUROPE.

*The Russian Almanack*, 1919. Compiled and edited by N. Peacock. London: Published for the Anglo-Russian Trust by Eyre and Spottiswoode. *Price* 5*s. net.*

Since 1917 the issue of the Russian Year-book has been suspended, and the present Almanack has been compiled to fill the gap, in so far as this is possible under present conditions. An attempt has been made to present the scanty information available in a dispassionate manner, and the book will be found of much value in attempting to form some idea of the trend of events in Russia.

An initial difficulty of course lies in the significance which is to be assigned to the word Russia, and the Editor has endeavoured to meet this by including in her survey all the territories which formed part of the former Empire, whatever their present political position. The available statistics refer in large part to the old Russia, which makes it difficult to grasp the actual conditions prevailing in Soviet Russia. Since, however, the separate States, in so far as they are natural entities, have had a considerable amount of attention devoted to them in recent publications, we shall confine ourselves in this review to Soviet Russia.

The Russia under Bolshevik rule is practically the equivalent of the Great Russia of the Empire, but only eighteen governments are nominally under sufficient control to be directly taxed. The area included approaches 945,000 sq. miles, and the population has been estimated at 60,000,000; but this is probably largely in excess of the reality. Under the heading of "Economic Position" an acute observation informs us that before the Bolshevik revolution internal communication within Russia as a whole had broken down, converting the country into a group of separate governments. This fact undoubtedly facilitated the revolution, and the revolution in its turn has increased the difficulties, railway rolling stock being now in a deplorable state, while agriculture and industry have alike suffered grievously.

Apart from this basal difficulty of bad communications, which means that there is no organised selling market, and that prices therefore vary enormously from point to point, Soviet Russia is virtually isolated from the world market by the almost continuous ring of wholly or partial hostile States. Now before a State in such circumstances can be stabilised, it must clearly be self-supporting, and this whether the basis of the State is "the dictatorship of the proletariat" or not. It is at least theoretically possible that a State which could produce the whole of its necessary food supplies, sufficient raw materials to establish industry, and possessed such a relative proportion of agriculturists and industrialists that the products of industry could be absorbed by the home population, and the industrial workers fed by the cultivators, could maintain itself in the midst of a hostile world. But in point of fact none of these conditions is fulfilled by Soviet Russia. Before the war, despite the fact that the Russian Empire exported certain foodstuffs largely, others had to be imported, notably tea, sugar, coffee, fats, rice, salt fish, and so forth, as well as many raw materials for industry, chemical fertilisers, machinery, manufactured goods, etc. Further, Soviet Russia has lost the wheat and sugar of the Ukraine, the coal of the Donetz region and the oil of the Caucasus, the flax, cattle, and northern cereals of the Baltic Provinces, the timber and paper pulp of Finland, the timber of the north, the manufactured goods of Poland, and so forth. The result is that she has at the moment practically nothing to export, even were export easy, while she has urgent need of machinery, especially loco-

motives, seed corn, fertilisers, and so forth, as well as of coal, many manufactured goods, and foodstuffs. Again, even if she had goods waiting for export, the economic collapse due to Bolshevist methods would make any trade save an elementary form of barter impossible. It is perfectly clear then that if Bolshevik Russia is to survive, only two courses are open. In the first place, the leaders must abrogate their own principles so far as to grant concessions to external capitalists for the exploitation of the natural resources of the country, in return for the necessities of existence. An offer of this of course has been already made. Second, since the survival of an economically dependent Soviet State in a world in which this form of government was common is at least more conceivable than in the world as at present organised, they must carry on external propaganda; with the hope of a return to the pure doctrine of Bolshevism if the propaganda succeeds. Since that return would doubtless involve fresh repudiations of external debts, capital is scarcely likely to flow into Russia. The most hopeful feature, according to the Editor of the Almanack, is the fact that the Bolsheviks had not dared—at the time of publication—to attack the powerful Co-operative Societies of Russia, and these, which are widely distributed, both in Bolshevik and non-Bolshevik Russia, form a bond of union between the different parts of the country. The Siberian Co-operative Unions especially have produce to dispose of, and the strengthening of the Co-operative movement by the development of external trade, dependent upon barter, might play a great part in helping Russia to recover.

It is obvious from the above summary that the Russian Almanack contains much material of great interest at the moment.

*Europe in the Melting-pot.* By R. W. Seton-Watson, D.Litt. London: Macmillan and Co., 1919. *Price* 4*s.* 6*d. net.*

By the prolonged study of questions relating to the Near East, by visiting the countries affected, and by minutely observing the conditions under which their varied nationalities exist, Dr. Seton-Watson has made himself a leading authority whose opinions are recognised and valued throughout the world. Added to this is his possession of a style which enables him to express in clear and vigorous English the results of his long and arduous observation. The work before us contains a series of articles contributed by him to various periodicals, from 1914 to 1919, on questions relative to Austria-Hungary, Russia, Poland, Italy, Rumania, and the Balkan States. All interested in these countries (and who is not?) will in this work learn the opinions of one who has made himself a master of his subject and who can convey his views in a clear and forcible manner. That the author is often critical and always Slavophile does not detract from his work but adds zest and piquancy to it. The book is illustrated with several maps.

*Beyond the Rhine. Memories of Art and Life in Germany before the War.* By Marc Henry. London: Constable and Co., 1918. *Price* 6*s.* 6*d. net.*

What adds to the interest of this well-written and very readable book is that it is by a Frenchman who visited Germany and formed a wide acquaintance among Germans before the war. In 1898 he founded at Munich the "Deutsch-Französische Rundschau," which "for four years united plenty of good-will in a common and pacific cult of the humanities." Then in 1902 he founded at Munich "an advanced theatre," in which he gave French folk-song a large place in the programme. Then he travelled through all the towns of Germany and neighbouring countries lecturing to considerable audiences. Ultimately he returned to

France and served during the war. He adds, "I believe in our victory because our cause is that of all peoples, while the cause of our enemies is that of an evil tyranny; but I cannot help thinking that, if we had better studied the Germans themselves, we should have avoided many misunderstandings."

*Poland the Unknown.* By K. Waliszewski. London: Heinemann, 1919. *Price* 10*s.* 6*d.*

The downfall of the three empires which so guiltily annexed Poland has encouraged Polish writers like the author to produce valuable philosophical dissertations on the history of their unfortunate country and to welcome its resurrection. The present volume is extremely well translated from the French, and bears in all its pages evidence of its author's thorough knowledge of his subject. He tells us that, after the suppression of Polish schools, repugnance to German or Russian schools caused Poles to escape for education to countries like France. He himself and forty other Poles were educated in the College of St. Clement at Metz, a college where before 1870 the now celebrated Marshal Foch was educated.

*Tales of Serbian Life.* By E. Chivers Davies, Author of *A Farmer in Serbia*, etc. With illustrations by Gilbert James, William Sewell, and Noel L. Nisbet. London: George G. Harrop and Co., Ltd., 1919. *Price* 7*s.* 6*d. net.*

This collection of tales of Serbian life is interesting in itself, and it would throw a homely light upon a volume giving a critical and historical study of the Serbian people. The first and last tales are of a peasant family, while the first contains some fairy stories told by the mother to her children. The second relates the adventures of a small boy who ran away from his uncle's house, in order to join his father. The book is well illustrated, the sketches by Mr. Nisbet especially giving a true Eastern touch.

*Nationalities in Hungary.* By André de Hevesy. London: Fisher Unwin, 1919. *Price* 6*s. net.*

The author of this interesting volume states that it was originally written with the aim of pleading the cause of the minor nationalities in Hungary. In this second edition, he finds that exaggerated pretensions are asserting themselves among legitimate demands for national restoration. Aided by a fine ethnographic map of Hungary and valuable statistics, the author treats with care and erudition the history of the various nationalities comprised in Hungary. According to the Census of 1910, these nationalities consisted of:—

| | | | |
|---|---|---|---|
| Magyars | Population | 9,944,627 | (54·5 per cent.). |
| Rumanians | „ | 2,948,186 | (16·1 „ ). |
| Slovaks | „ | 1,946,357 | (10·7 „ ). |
| Germans | „ | 1,903,357 | (10·4 „ ). |
| Ruthenians | „ | 464,270 | ( 2·5 „ ). |
| Serbs | „ | 461,516 | ( 2·5 „ ). |
| Croats | „ | 194,808 | ( 1·1 „ ). |
| Other Nationalities | „ | 401,412 | ( 2·3 „ ). |

At the date of the Armistice (11th November 1918) Hungary possessed a territory of 282,870 square kilometres, and a total population of 18,264,533. Were its neighbours' claims allowed, as made since the Armistice, the territory of Hungary proper would be reduced to 91,547 square kilometres, with a population of 7,358,310. To explain this proposed partition of Hungary, the author states that

Rumania claims 129,447 square kilometres with a population of 6,841,379; Bohemia claims 34,878 square kilometres with a population of 1,995,812; Serbia claims 33,728 square kilometres with a population of 2,371,236; both Rumania and Serbia lay a claim to other 17,449 square kilometres with a population of 1,115,986; and the new Republic of Austria claims 10,719 square kilometres with a population of 813,782.

Writing from Geneva on 25th February 1919, the author concludes his instructive volume with a word of warning regarding the method in which the partition of Hungary is to be effected. "The peace of the Danubian lands will depend on what method may be chosen to bring it about. If the various nationalities are all treated as equals, if the genuine will-expression of all is respected, if international guarantees are granted to minorities, still better, if there is no compulsory unification—which begets oppression, aggressiveness, greed, all Prussian characteristics—then there will ensure a pacific development, fruitful labour, an understanding among the peoples, and some day, maybe, there will arise from the complexity of innerly federated States, the Danubian 'United States.'"

*The Village: Russian Impressions.* By Ernest Poole, Author of *The Harbor*, etc. London: Macmillan and Co., Ltd., 1919. *Price* 6*s. net.*

This is the record by an American writer of a stay in a Russian village after the revolution. He is all the time in company with a Russian friend named Tarasov who, one presumes, is a typical Russian "intellectual." He is a great talker. His ideas are usually sound enough, but there are too many of them, and they are always getting mixed up with his emotions. Mr. Poole describes him as an impractical man, which seems very near the truth. An unkindly critic would put the matter more crudely. The book, like so much that has been written on Russia, increases one's sense of hopelessness in regard to its future.

*Wanderings in Italy.* By Gabriel Faure. London: William Heinemann. *Price* 7*s.* 6*d. net.*

This is a translation of M. Faure's *Heures d'Italie*, containing a section on the *terra redenta* of Tyrol, Friuli, and Trieste. The "wanderings" of the title extend over Northern and Central Italy, Montefalco in Umbria being the most southerly town discussed, and took the author to relatively unfrequented places like Orta, Varallo, Castelfranco, and so on, rather than to the more usual goals of artistic pilgrimage. Indeed, Florence, Venice, and Ravenna are not discussed, and though Verona is given a chapter to itself, this is devoted to the Giusti Gardens, and not to the monuments and works of art. The book is thus not in any sense a guide-book, but it will make a strong appeal to all those to whom the artistic treasures of Italy are already familiar, and who hope for an early opportunity of renewing a former acquaintance with the country, and adding new impressions to the old ones. To such the book, with its wealth of quotation, its keen appreciation of the beauties both of art and nature, may be cordially recommended.

*The Spirit of Russia: Studies in History, Literature, and Philosophy.* By Thomas Garrigue Masaryk, First President of the Czecho-Slovak Republic. Translated by Eden and Cedar Paul. London: George Allen and Unwin, Ltd., 1919. *Price* 32*s. net.*

The above work has nothing to do with geography in the ordinary meaning of the term, but it details the geographical development, if one might say so, of the

so-called Russian intellectual's mind. It is not a book like Rambaud's *History of Russia*, which one could read by the hour, but is simply a work of reference to the past and present Western writers who have helped in ever so small a way to mould the Russian character. Innumerable references are also made to the various Slav writers who have helped to bring about the modern revolution.

The author might have treated more fully Haxthausen's mistaken notion about the Mir or Commune being special to Russia, when it is well known that such a system of life is common to primitive communities. He might also have pointed out the dire effects of the teaching of Haxthausen, Mill, Saint-Simon, etc., not only upon Russia, but upon the world in general. Comte could have been given a far better "setting," seeing he was the great constructive thinker of the nineteenth century.

The reader must always keep in mind that Russia was controlled by the Mongols for two hundred years, and that she borrowed her religious views from Byzantium, which kept her from the light of the West for many centuries. From the state of mind of the Russian intellectuals, as well as from the geographical position of the country, Russia has been for many years the "poison spot" of Europe.

Although *The Spirit of Russia* is rather dry reading, still it is an excellent book of reference for the student of Sociology.

*The Romantic Roussillon: In the French Pyrenees.* By Isabel Savory. With a Map and twenty-six Plates from Drawings by M. Landseer Mackenzie. London: T. Fisher Unwin, Ltd., 1919. *Price* 25*s. net.*

The ladies to whom we owe this very interesting book spent some ten months in the district. Their doings were not on a grand scale. Yet the title they have adopted is well justified. They traversed the roads which were followed by Charlemagne, by the Romans, by Hannibal and his elephants, and by the Visigoths: they explored fastnesses in which were enacted scenes which figure not only in the frontier stories of France and Spain but in a larger history. They saw the places of retreat of a band of outlaws belonging to only two or three generations back, and were in the homes and haunts of the smuggling fraternity. The historical interest is always present. So also is the architectural, and the most attractive feature of the book is the many drawings of this nature. They give a far truer and more vivid impression of the originals than would any photograph, a remark which applies with special force where carvings are the subject. We may instance in particular the Crucifix on page 62, and the Madonna on page 68.

Naturally the judgments expressed will not satisfy every one. The cloisters at Elne receive a very qualified encomium. To the writer of this notice they are the most charming recollection of a delightful tour. But then he has not seen Serrabona, and he is quite prepared to accept the enthusiasm which it has evoked.

There is keen appreciation of the country, rocky and sterile though most of it is, and of the varied types among its inhabitants. The terrors of the Tramontane were too much at one time, and drove the wanderers to the shelter of Barcelona. Yet no reader can fail to experience the lure of the region in these pages. Assistance to travellers is given at the end of the book by notes detailing routes and the fares of so recent date as October 1919.

The footnote on page 180 seems to indicate a change of arrangement in the book.

*The Story of the English Towns: Leeds* and *Sheffield*. By J. S. Fletcher. London: S.P.C.K., 1919. *Price* 3*s.* 6*d. net each.*

Leeds and Sheffield are for the most part products of the Industrial Revolution. Previous to that period neither ranked as a place of great importance, though Sheffield was already noted for its cutlery. It is fitting or fortunate that the publishers should begin a new series with studies of such towns, connected as they are with the evolution of modern industrial Britain. Mr. Fletcher has told an interesting story exceedingly well, and facts that are usually regarded as the drybones of history are skilfully clothed as for a historical pageant. If we prefer the volume on Leeds it is because Mr. Fletcher has succeeded in making the parochial aspect of eighteenth-century conditions so real that we can almost imagine we are reading a romance. At the same time the growth and progress of the modern steel industry in Sheffield are carefully traced in the volume on that city. Both are living documents of Industrial History, and appeal strongly to the Geographer. Both volumes deal adequately with all aspects of city development from the earliest period to the present day, and will find a market far beyond the regions they describe. It is to be hoped that the publishers will not limit themselves to English towns, but arrange for a similar Scottish series.

## ASIA.

*Indo-China and its Primitive People.* By Captain Henry Baudesson. London: Hutchinson and Co., 1919. 16*s. net.*

This volume records the personal observations of a member of the (French) Commission which surveyed the area for the Trans-Indo-Chinese railway. It is divided into two parts, of which the first, and longer, deals with the Moï, who inhabit the region between the Chinese frontier and the boundaries of Cambodia and Cochin China, the second with the Cham, a Mohammedan people, some 130,000 in number, who live in the province of Binh-Thuan in Annam. In both cases the author deals principally with the rites and superstitions of the people, and draws a parallel between these and analogous ceremonies among other peoples in older periods of the world's history. The main value of the volume is its personal record of careful observations which, even without the parallels, show the people as very primitive. The author does not profess to make a scientific study in the present volume, but seems rather to endeavour to interest Frenchmen at home in those lowly inhabitants of the French Empire in Asia. Hence the story Captain Baudesson has told is both readable and instructive, and even in translation carries the reader steadily on. There is, at the same time, material for the geographer who is ready to welcome such first-hand accounts of inhabitants of regions that lie beyond the visits of many travellers.

The volume is illustrated with 48 photographs, and has a bibliography of works relating to the subject matter, but there is no map from which the country traversed by the author can be examined.

*In and Around Palestine with Notebook and Camera.* By Alfred Forder. London: Religious Tract Society. 3*s.* 6*d. net.*

There is a pathetic interest about this book, in that its author, Rev. Alfred Forder, was in the evil hands of the Turk while its pages were being printed. For two years he was treated as a common felon, and interned afterwards in Damascus. When General Allenby delivered the city he was lying ill in hospital, but has happily recovered. A living touch marks the book which is often absent from

works on Palestine. You feel that you are in the company of a writer who knows intimately what he is writing about, and who is not giving you the impressions left by the swift glance of a traveller, however well informed. Few have succeeded so well in bringing the reader close to the scenes depicted. Jerusalem naturally opens the pilgrimage, and Mr. Forder, without expense of words, carries you swiftly "in and around it." Then he bears you off to Galilee, across Lebanon (on a donkey), to Damascus and Mesopotamia, then to Mount Sinai, and Moab, and Petra, with its strange and magnificent ruins, and last of all to the Giant Cities of Bashan, that still leave men wondering. The illustrations are numerous, and if small in compass are very distinct. The map is the poorest part of the book, and there is no index. But the matter is compact, interesting and informing, although pre-war.

*England and Palestine: Essays toward the Restoration of the Jewish State.* By Henry Sidebotham. London: Constable and Co., 1918. 6*s. net.*

Of course what the author means is "Britain and Palestine." The essays, informing and forcible, are a strong plea for Palestine being carved out as a Jewish State under a British Protectorate. The value of Palestine to Britain, one can understand; for, as Mr. Sidebotham says, "Egypt is our master interest in the East. And to say that, is to say that Palestine is our master interest: for Palestine now as always is the key to Egypt." But the making of Palestine into a purely Jewish State presents some hard problems. The author argues solely from the standpoint of the Jews, acknowledges that there is an Arab population, and ignores the presence of the Christian community, and also how deep and fervent is the interest of all Christendom in Palestine and the Holy City, which by tears and blood they have delivered from the Turk. But Mr. Sidebotham surveys a wide field of history in his contentions, and writes throughout with sustained interest. But the completeness of the British victory had not been reached when he closed his essays, although that does not impair his demand for a purely Jewish State, ruled by a Jewish council, with one non-Jew to represent the vast non-Jewish population. The book is furnished with an excellent map.

*Samurai Trails: A Chronicle of Wanderings on the Japanese High Road.* By Lucian Swift Kirtland. London: Hodder and Stoughton, 1919. *Price* 12*s.*

Leaving the ordinary travel-routes and show-places of tourist Japan, Mr. Kirtland and his friend, "O-Owre-san, a most satisfying disputatious companion of inquiring mind," travelled afoot for many miles along the ancient road by which the feudal emperors with their guard of two-sworded Samurai warriors were wont to make pilgrimage from Kyoto to Tokyo. The author's descriptions of their experiences among the unsophisticated villagers and wayside inns of the interior are both graphic and picturesque, though his wording, especially in his philosophic remarks, is often somewhat grandiloquent in style:—"The maid placed our Occidental rucksacks on the shelf under the *kakemona*. Their very presence piped a chanty that our possessing the room was ironic comedy"—meaning, we presume, the presence of a certain incongruity between the travellers and the surroundings of a Japanese inn. The book is nevertheless fresh, interesting, and well worth perusal. It is illustrated with some charming photographs.

## AFRICA.

*Three Years of War in East Africa.* By Captain Angus Buchanan, M.C. London: John Murray, 1919. *Price* 12*s. net.*

At the outbreak of war Captain Buchanan was engaged, on behalf of the Saskatchewan Provincial Government, in studying the plants and animals of the Far North of Canada, west of Hudson Bay. The news of the outbreak did not reach him till the end of October, and he at once struck south in order to enlist. The spring of 1915 found him starting with the 25th Royal Fusiliers for British East Africa as a private. By the end of the same year he had been offered a commission, and he served continuously, despite the hardships of the campaign, till the beginning of 1917, when the battalion was sent to the Cape for three months' rest. Returning to Lindi, in former German territory, at the end of May the troops, despite their period of rest, were attacked by fever, which thinned their ranks at an appalling rate. Captain Buchanan struggled against recurrent attacks for some time, but by September he was obliged to give in and was invalided to South Africa. About a month after his departure his unit was overwhelmed by superior forces while covering a temporary retirement and was cut to pieces.

The tale which Captain Buchanan has to tell, therefore, is tragic all through, even apart from the actual fighting. In arranging in order the difficulties of the campaign he puts the resistance of the enemy last; the great difficulties were the trackless bush with its manifold obstacles to progress, the climate and associated diseases, and the inadequate rations. It has often been pointed out that for the natives of Tropical Africa food is the overwhelming preoccupation, famine the ever-present menace. The rations supplied to the fighting forces seem to have been insufficient and monotonous at best, and the difficulties of transport were such that they did not always reach them, while the country, despite its game animals, yielded practically nothing of any account. There seems little doubt that much of the sickness from which the troops suffered so severely was due to want of adequate food.

Captain Buchanan is a keen naturalist, and under the most adverse conditions contrived to make considerable collections of both plants and animals, while his book contains many interesting notes on the natural history of the country. He notes that a tsetse-fly was in some parts a great pest, following riders for many miles and biting severely. The point is interesting, for, in connection with sleeping sickness in Uganda, it has been stated that Europeans are rarely bitten, owing to the preference of the fly for attacking parts of the body, such as the back, which are concealed by European clothes. The attacks in the East African campaign were presumably on the face or hands. Among other insects the wild bees proved a great plague, and dreadful accounts are given of the attacks of infuriated hordes.

The book, which has three maps, a number of illustrations, and an excellent index, may be cordially recommended.

*Togoland.* By Albert F. Calvert. London: T. Werner Laurie. *Price* 5*s. net.*

This is one of the series of books which the author is writing on the former German colonies in Africa, and is very copiously illustrated. It has a lengthy preface containing an account of the way in which the colony was acquired by its former owners, and the mode in which it was developed. This is followed by a series of chapters of the physical features, agriculture, people, and so forth. The

chief products are palm oil and kernels, but a considerable amount of native agriculture is carried on.

"*The Red Book*," 1919: *The "Standard" British East Africa and Uganda Handbook or Directory.* Compiled by the "East African Standard." Narobi and Mombasa: East African Standard Ltd., 1919.

This is to be an annual publication, but the editor points out that the present issue has been produced under great difficulties, owing to war conditions; even the obtaining of paper proved a serious problem. There are no maps and the geographical descriptions are very brief, but the book will doubtless develop as time goes on.

## AMERICA.

*Cuba: The Land of Opportunity.* By GEORGE CLARKE MUSGRAVE. London: Simpkin, Marshall, Hamilton, Kent and Co., 1919. *Price* 1*s. net.*

As the title indicates the author's object in this booklet is to call attention to the advantages which Cuba offers, both to the business man and to the settler on the land. Yellow fever has now practically disappeared from Havana, and the death-rate in the island is said to be the lowest in the world. Despite a favourable climate however, and good soil, the population only averages 60 per sq. mile. Sugar and tobacco are of course the main products, but a great variety of crops, especially tropical or sub-tropical fruits, can be raised, and fruit-farming is on the increase. Among interesting minor points we notice that the workers in the cigar factories at Havana have their hours of mechanical toil lightened by musicians or gramophones or readers paid out of a special fund to which the workers contribute. The readers begin the day with the newspapers, and follow up with poetry and prose by standard authors. One result is that the workers are remarkably well educated. A foreign director who suppressed the custom was obliged to reintroduce it on account of the fall in output which followed.

*Alone in the Caribbean.* By FRED. A. FENGER. London: Hodder and Stoughton. *Price* 12*s. net.*

Those who desire a profound historical and geographical study of the Lesser Antilles, "a chain of volcanic peaks strung out like the notched back of a dinosaur," will not turn to Mr. Fenger's pages; but should one desire a racy yarn, written with restraint and yet with enthusiasm, with a dash of humour and a good seasoning of striking phrases and excellent descriptive patches, then let him read this volume. He will not have a dull moment, will find instructive entertainment, and will lay down the book with a suspicion of envy in his mind of the man who had the luck and daring to spend exhilarating days on and around the romantic isles of the Caribbean. With the author as cicerone, he will chase humpbacks off the Isle de Caille, take delight in dodging "duanes," will keep an observant eye on the antics of flying fish and porpoises, voyage in perilous seas with a shark for company, and learn, while steering with a main-sheet, to have respect for the trade winds, especially when coasting and channel running in a seventeen-foot, rudderless, sailing canoe, weighing, with everything the "captain" requires aboard, a paltry 260-290 lb. He will be in time to learn something of the almost extinct Caribs, will experience the "Yellow Streak" in the negro, fathom the art of coal-pot cooking and the making of cassava cakes, climb the Soufrière of St. Vincent and wander amid the desolation of Mount Pelée's violence,

catch century-old glimpses of the pathetic Empress Josephine, and learn how Carriacou was almost entirely freed from mosquitoes by the introduction of "tap minnows" (*Girardinus poeciloides*) into ponds, tanks, and water-barrels. In short, Mr. Fenger will prove to him that the days of romance are not yet dead. Ever and anon, beautiful photographs will hold his eyes, while his imagination conjures up visions of charming days and no less charming nights.

## POLAR.

*With the "Aurora" in the Antarctic*, 1911-14. By Captain J. K. Davis. Maps, diagrams, and illustrations. London: A. Melrose, Ltd., 1919. *Price* 18*s. net.*

Few men have had so wide an experience of the Antarctic as Captain J. K. Davis. He was in the Ross Sea in Shackleton's expedition of 1907-9; he commanded the *Aurora* throughout the Mawson expedition of 1911-14, and in 1915 conducted the relief expedition to pick up Shackleton's party in the Ross Sea. This volume, however, is confined to the *Aurora's* voyages from 1911-14. Sir Douglas Mawson has published an account of this expedition, but that book was naturally concerned with land work. Captain Davis's volume takes a new outlook on Antarctic exploration: it is the first volume, since Sir J. C. Ross's in 1847, written exclusively from the sailor's point of view. There are no accounts of land exploration, sledge journeys, and life at winter quarters. Captain Davis has not striven to write a popular narrative heavily laden with the incidents of daily life. He has expanded his log-book, explaining where necessary, but avoiding all embroidery of imagination. The result is a book of lasting value, not merely as a record of voyages along the Australian quadrant of Antarctica, but as an authoritative volume on ice navigation by the great living master of the subject. The pages are never dull, for one reads between the lines of his simple record the story of great difficulties splendidly overcome, and, being written by a sailor, the book never dwells upon the ordinary trials of the seaman which to the author were all in the day's work.

The volume deals not merely with ice navigation but contains much valuable geographical matter relating to bathymetrical survey, in which Captain Davis acknowledges with gratitude Dr. W. S. Bruce's help and advice, and land distribution in that region. There are also chapters on Macquarie Island, and its survey, and the Auckland Islands, with useful information about harbours. The only previous navigators in those Antarctic seas were Balleny in 1839, and Dumont d'Urville and Wilkes, both in 1840. The *Challenger* in 1873 and the *Gauss* in 1902 touched the western part of the *Aurora's* sphere. Captain Davis gives a critical discussion of the discoveries and conclusions of these expeditions, and with the help of numerous sketch-maps compares their tracks with his own. We are glad to see that he does full justice to Wilkes, the American explorer, whose work has often failed to receive sufficient appreciation. It is a little unfortunate that Mawson decided to restrict the name of Wilkes Land to that part of the coast immediately west of Adelie Land. Its former wider application to the whole coast-line of the Australian quadrant was not only most convenient but quite justified in the light of the *Aurora's* discoveries. Of Wilkes's numerous reports of "High Land," that south of Côte Claire, the vanished ice cliff of D'Urville, and Termination Land must be removed from the map, but most of the others, allowing for small errors in judging distances, will probably be proved approximately correct in position. In any case they have not been disproved. The *Challenger* and the *Gauss* were right in saying Termination Land does not

exist, but Captain Davis proved the presence of a great ice tongue approximately in that position. Ice prevented the *Aurora* approaching the coast-line except at Adelie Land (D'Urville), Mawson's Wilkes Land, and Mary Land, the last an eastward extension of Drygalski's Wilhelm Land. The ice that prevented approach elsewhere was undoubtedly packed against land.

Captain Davis's final chapter is on the future of Antarctic exploration, all too short for a man of his experience. His final advice is to keep out of the Antarctic if you lack the money to provide good equipment of every kind, including the right ship. To those who go he says, "Study the literature of the Antarctic," and we would add, this book in particular. The book has many illustrations, scores of sketch-maps, and a large folding map. One criticism of the map on page 176 in particular may be made. Is it not time that double and triple names were abbreviated? We can do without the first and the last parts of Kaiser Wilhelm II. Land and the Prinz in Prinz Luitpold Land. The same applies to similar British names. We believe that the Admiralty has decided to shorten all such names on forthcoming new Antarctic charts.

R. N. R. B.

## GENERAL.

*Accounts Rendered of Work Done and Things Seen.* By J. Y. Buchanan, M.A., F.R.S.. Cambridge: University Press, 1919. *Price* 21*s.*

This book, like the previous volume published by its author, contains reprints of articles and papers which first appeared in scientific journals, etc., or were delivered as lectures. The papers are reproduced in their original form, but in some cases additions have been made either in the elaborate analytical table of contents, or as postscripts to the papers themselves.

Among the articles which will prove of special interest to geographers, we may note the first, which formed Mr. Buchanan's Inaugural Lecture as University Reader in Geography at Cambridge in 1889, and is reprinted with a supplement dated 1918. The second paper, again, entitled "A Retrospect of Oceanography in the Twenty Years before 1895," formed an address to the Oceanographical Section of the Sixth International Geographical Congress, held at London in the year named. A considerable number of other papers have a more or less direct bearing upon geography, and students will be glad to have them collected together in this convenient form.

*A Private in the Guards.* By Stephen Graham. London: Macmillan and Co., Ltd., 1919. *Price* 10*s. net.*

Of this volume generally we may say, with our national poet,

"Facts are chiels that winna ding,
And downa be disputed."

If one who has had similar experiences of the existence called Army Life may offer any criticism of Mr. Graham's book, it is that the author has been too reticent in his descriptions of his sufferings as a recruit. There is little in the volume that may, even in the widest sense, be termed geographical, but it is packed with most interesting matter and illuminating reflection. Let those that have minds to understand read what the army meant to at least one of its private soldiers. It may be enough to mention the author's trek to Germany. Mr. Graham has made the best of this so-called triumphal march, which was relieved, here and there, by much real kindness on the part of the poor people among whom he was billeted—an aspect to which he does full justice.

Mr. Graham marched from Maubeuge on November 18. At Binche he got a Bath bun for three francs, but had a glorious reception: there others remarked an apathetic interest on the part of the inhabitants, but purchased morning rolls for half a franc! The excusable absence of dates in Mr. Graham's narrative precludes a close examination of his itinerary, but the route omitted the towns most worth visiting—Mons, Charleroi, Namur, Liège, and Aachen. He was side-tracked to miserable villages of the Ardennes. Of the discomforts of this part of his journey, aggravated as they were by dirty roads, cold weather, and irregular and sometimes absent food supplies, he is either discreetly silent or his lines were cast in much pleasanter places than those of others we know. Mr. Graham crossed the Ourthe at Hamoir, and on December 12 marched into Germany towards Amel. He passed through the beautiful forest of Zitter and Hellenthal on his way to Cologne. There his comrades found the Germans less dishonest than the French with whom they had dealings during the war, but still had no more faith in the Hun than Mr. Graham appears to have shown. His remarks on this period are well worth perusing, and his authority as a private soldier and a writer is sufficient guarantee to his readers that they have the bare truth in his book.

It is good to read such volumes; they serve to show what our men, as apart from officers, had to suffer, and what they felt during one of the most trying periods of the war. The privates of various regiments may be proud to express themselves through Mr. Graham—the great pity is that so few are equally qualified to give vent to their real opinion of a system that reduced men to mere machines.

*British Rainfall*, 1918. By Hugh Robert Mill and Mr. de Carle S. Salter. Fifty-eighth annual volume. With maps and illustrations. London: Edward Stanford, 1919. *Price* 10*s.*

Dr. Mill states in his preface that his part in the editing of this volume has been a minor one, but he claims the privilege of writing the preface for the last time. He contributes also an article on the development of the British Rainfall Organization since 1910, at the end of which he takes leave of his friends and colleagues in a few pathetic words. Dr. Mill's portrait forms the frontispiece of the volume, which contains in addition a number of maps and diagrams. Mr. de Carle S. Salter contributes an article on the Relation of Rainfall to Configuration, which is illustrated by some very striking diagrams; the remainder of the volume follows the usual lines.

## EDUCATIONAL.

*A Causal Geography of the British Isles.* By J. Martin, B.Sc. With 170 maps, diagrams, and illustrations. London: Longmans, Green and Co., 1919. *Price* 4*s.* 6*d. net.*

The title is attractive, and the promise of scientific treatment and of interesting, instructive matter is not belied by the book itself. Not that the book is easy reading for pupil or general reader; for, as the preface tells us, the book, as a text-book, presupposes the guidance and supervision of a teacher. The contents of the book itself reveal how many-sided must be the equipment of the modern post-elementary teacher of geography. Of quite a variety of sciences he must have a comprehensive, sympathetic grasp, as successive chapters of this text-book show us—Geology, Meteorology, Agriculture, Botany, Political Economy, History (Industrial, Commercial, and Political): and in addition, of course, he

must be familiar with the present-day surface features and topography of the Earth. "Happy is he who is able to know the causes of things," wrote Virgil, having in his mind the benefit of possessing a philosophy to account for the diverse happenings in life. "Causal Geography" admits of no simple philosophising or tracing of the features of man's Earth to a single cause. If a predominating cause is to be sought for, one finds it, according to this "Causal Geography," in the geological conditions: second to these, one would gather, come climatic and meteorological conditions. In a word, Physical Geography determines Commercial and Industrial, and to a large extent also Political Geography. The conjunction of coal strata and concentrated population (the case of London excepted) is of course the stock illustration of the general principle: a newer illustration, among many which we meet with in the volume, is the natural fitness of Rosyth as a naval base, in the proximity of coal, oil, iron, etc., as well as from its natural defensibility on both sides of the Forth. Viewed in this light, geography becomes the most comprehensive and the most practical of the sciences, being a study of the several local resultants of all nature's forces, past and present, as manifested in our present community-life. The Causal Geography before us strikes the happy mean between the extremes of over-elaboration and bald enumeration of causes. Geographical study after this fashion becomes not only one of the most practical but also one of the best of cultural studies—a *sine qua non* in the education of statesmen and civic leaders and essential to the building up of an intelligent national consciousness.

*The Study of the Weather.* By E. H. Chapman. Cambridge: at the University Press, 1919.

Teachers are slowly realising the necessity for Weather Study, not only as interesting and educative in itself but also as the real foundation of the study of climate. Mr. Chapman's suggestive and practical volume will attract children because of its novelty. He gives an elementary account of each of the phenomena we collectively term weather, and illustrates that account by a series of excellent plates and diagrams. He points out that the work is largely the recording and study of observations. In its meteorological aspect the main end of his course is weather-forecasting, but for educational purposes we should have liked more correlation with climatology. At the same time the book supplies material for an original nature-study course, and is well worth the careful scrutiny of teachers in elementary schools.

*The Geography of Europe.* Edited by Ellsworth Huntington and Herbert E. Gregory. Newhaven: Yale University Press, 1918.

This little book, which is at present published in pamphlet form, has been prepared and issued under the auspices of the Division of Geology and Geography of the U.S.A. Natural Research Council, and is intended for the use of the members of the Students' Army Training Corps. While not professing to give a full and complete account of the Geography of Europe, it aims at giving information regarding the physical geography of the Continent, and the industries and manner of life of the people, which it is desirable should be presented in some form to prospective officers. The book is largely the result of contributions from a group of men in active Government service, principally professors of geology, geography, and economics, each of whom is an authority on his subject. Part I. treats of Europe as a whole, and discusses its position, relief, and climate, points out its natural divisions, and then describes each natural region in turn. Then

follow chapters on the peoples and countries, occupations and industries, forestry, manufactures, and transportation. Part II. deals with the separate countries in detail, with special attention to economic factors. Each chapter concludes with a set of problems to be worked out by the student under the teacher's guidance, the working out of which involves the constant and intelligent use of atlases, encyclopædias, and reference books. As an example of method applied to the teaching of geography the book is worthy the attention of every teacher, and no student who has worked systematically through the course can fail to have a satisfactory picture of the geographical conditions of Europe. On page 46, which deals with mineral localities, it may be noted that the German centre Stassfurt is wrongly printed Strassfurt.

*New Regional Geographies: The British Isles.* By LEONARD BROOKS, M.A. (Cantab.), F.R.G.S. London: University of London Press, Ltd., 1919. *Price* 2*s.* 6*d.*

This volume is part of Book III. of the *New Regional Geographies*, the first two books of which were fully reviewed in the *Magazine* (vol. XXXIII. p. 142). The publication of the full book, which deals with Europe and Africa, has been delayed till the decisions of the Peace Conference are known, but at the request of many teachers the British Isles portion is issued meantime as a separate volume, but will later on be incorporated with the larger book. The features of the previous books are continued in the present volume. After a general survey of the physical and economic conditions of the whole country, the author proceeds to subdivide the country into natural units, and deals with each separately, laying special emphasis on the economic point of view. A feature of the treatment is the attention paid to routes and to the position of towns. As in the previous books the illustrations, maps, diagrams, and statistical tables are a special feature, while the questions and exercises are such as to require individual and independent work on the part of the student. The volume forms a worthy continuation of this excellent series. Printer's slips are noted on page 52, where Melrose should be "Montrose," and on page 76, line 7, where Kilkenny is printed instead of "Killarney."

*Human Geographies.* Parts I. to IV. By J. FAIRGRIEVE, M.A., F.R.G.S., and E. YOUNG, B.Sc., F.R.G.S. London: George Philip and Son, 1919. *Price*, Books I. and II., 1*s.* 6*d. each*; Books III. and IV., 1*s.* 9*d. each.*

These books are the first four of a new series by Messrs. Fairgrieve and Young, whose works on geography are well known to teachers of the subject. Book I. is entitled "Children Far Away"; Book II., "Homes Far Away"; Book III., "The British Isles"; and Book IV., "In the New World."

As indicated by the title, the human note predominates throughout, and stress is laid on the relation existing between man and his environment. In the first book, which is intended for quite young children, use is made of authentic folk-tales of various lands. The books contain many illustrations, both plain and coloured, and in addition, the third and fourth books have a wealth of maps, many of which, illustrating the positions of places, being excellent.

THE SCOTTISH

GEOGRAPHICAL

MAGAZINE.

## THE INTERNATIONAL RIVERS OF EUROPE.[1]

By Professor L. W. Lyde, M.A.

This subject was chosen before the publication of the Treaty of Peace, and was dictated by a wish to combine my geographical creed with the political conditions of an "Americanised" Europe. The Treaty embodies so many of the principles which I wished to emphasise, that my treatment should perhaps now be rather historical than political.

My geographical faith is in Outlook; the jargon of to-day is about Leagues of Nations. This is the day of nations and nationalities, and geographers must rejoice in the fact, because civilisation depends on a blend of varied influences—each an individual element, a *genius loci*—and the triumph of nationality must curb that tendency to a drab cosmopolitanism which would crush out all such variety. But these varied interests cannot blend into a progressive civilisation unless they have all possible facilities for friendly meeting; for instance, International Rivers should not be like International Finance, anti-national, but really inter-national, "between nations," common to all nations, and encouraging the friendly meeting of diverse political elements and ideas. Liberty always makes for differentiation—in nations as in individuals; and if our international intercourse becomes really "free," the desired variety is guaranteed.

This is why I would like to press the truth that Outlook is, or ought to be, the motto of geography. It is so for many of us, and it ought to be for all. But the word covers both a process and an objective. The Outlook is essentially over Big Mother Earth; the process is visualisation—the picturing of forms and forces, places and peoples, beyond the horizon, all possible horizons being included in the

[1] The Presidential Address to Section E (Geography), at the Bournemouth Meeting of the British Association for the Advancement of Science, 1919, revised by the author.

one great unit of the globe. But the geographical interaction of the Man and the Place cannot be dissociated—least of all in Political Geography—from the historical interdependence of group and group. Both alike are concerned with progress. We want to know, therefore, the whole simple truth—what the particular features and phenomena mean as world features and world phenomena, *not* what special meaning can be read into them, or extracted from them, by some local and interested political unit. Geography is, first of all, the visualisation of the world and the relations of the various parts of that world.

Now, the one predominant feature of the earth's surface is not land, but water. Nearly all international problems to-day have to do, explicitly or implicitly, with the ocean, *i.e.* with access to cheap water transport on the medium which covers three-quarters of the whole surface of the earth. Even the problem of Alsace-Lorraine, itself perhaps purely a land problem, conceals—especially from the Swiss point of view—a problem of access to the sea; and the problems of Poland, of Italy, of Jugoslavia, are obviously sea-problems or sea-problems very slightly disguised.

It is a truism that the ocean attracts rivers and their trade and their riverine population. Industry, commerce, even culture, have been starved and stunted in various parts of the world by lack of easy access to the sea. Even your League of Nations idea has more than once approximated to a substantial fact—round the Mediterannean and round the Baltic, facilitated by inter-national or inter-racial rivers. The Hanseatic League was essentially based on the relation of a number of more or less navigable rivers to an inland sea, and that was why it came to include such distant "inland" members as Breslau and Cracow.

Accessibility is now more than ever before a supreme factor in all cultural and economic development, and rivers are still the chief natural intermediaries between land and sea. The first real international attempt to solve the problem of international rivers followed the victory of Sea Power over the France of Napoleon the Great; the second has followed the victory of Sea Power over this would-be "Napoleon" of Prussia.

Now, I submit that to many of us the mere word *river* by itself suggests, at once and primarily, a physical unity—no doubt, with some variety of relief and climate—and that on this physical unity we are prepared to sanction some social and economic and even political unity. But directly you add the qualifying *international*, the suggestion changes; the adjective raises a picture not of local features, but of regional relations.

In recent years I have pleaded for the use of rivers as political boundaries—on the ground that they clearly separate lands without at all separating peoples except in time of war; we want to preserve the valuable variety of political and cultured units, but to draw the various units together. Our object is unity, not uniformity. The proposal has been objected to—even by some who are not at heart hostile to the idea of fostering all possible aids to the easy, honourable, friendly intercourse of peoples—on the ground that rivers shift their courses. They

do, and trouble has come of this in the past, political trouble as well as economic. The Missouri was a fertile source of Inter-State squabbles. But no normal person would *choose* a mud-carrier, like the Missouri, "Muddy Water," as a political boundary, unless there was a marked difference of racial type or nationality running approximately along the line of the river. In fact, I would suggest that the troubles along the Upper Missouri were really due to the fact that the river was *nowhere* an Inter-State boundary, and therefore each State claimed the right to monopolise it in the particular section. If it had been an Inter-State boundary from the first, such a claim would have been obviously absurd. And it was the iniquity of the claim to monopoly that forced the United States, as similar conditions forced the Australian Commonwealth, to take over the control of the Inter-State rivers.

The principles behind the control are significant. Thus, the Murrumbidgee is entirely within New South Wales, as the Goulburn is entirely within Victoria; but the Murray is an Inter-State river—in a double sense, acting as a boundary between New South Wales and Victoria, and emptying through South Australia. New South Wales has entire use of the Murrumbidgee, and Victoria of the Goulburn, but the whole volume of the Murray up to normal low water level is left to South Australia. In Europe navigation is usually far more important than irrigation. Why should not Europe exercise similar control over the navigable rivers of Europe?

For, geographically, great navigable rivers are essentially a continental feature, *i.e.* really a world feature, for all major continental features must be included in a survey of world features, even if they are minor world features; and the world can recognise no right of a political unit to regional monopoly of the commercial advantages of such a feature to the disadvantage of other political units—least of all, others in the same region. As with the irrigation, when a river is obviously and entirely within an area where identity of culture and sentiment proclaims a natural or national unit, there that unit has a claim—even if it should prove impolitic to press it—to some monopoly of the facilities afforded by that river. But when the river runs through or between two or more such natural or national units, *i.e.* is really international, one of the units has no claim to any monopoly against the other or others.

It was reasonable that expanding Prussia should get to the mouth of the Elbe, and it was certain that Holstein had been both a fief of the Holy Roman Empire and in the German Confederation of 1815, and that succession in Holstein could *not* go in the female line. It was equally certain that Schleswig had never been in either the Holy Roman Empire or the German Confederation, and that succession in Schleswig *could* go in the female line. The reasonable sequel in 1864 would have been for Prussia to purchase Holstein from Denmark, and share the facilities of the international river.

One would not expect such a view to be taken by a Prussian, but that was the actual principle laid down by France nearly one hundred years earlier. The famous Decree of November 16, 1792, asserted that

"No nation can, without injustice, claim the right to occupy exclusively a river-channel, and to prevent the riparian States from enjoying the same advantages. Such an attitude is a relic of feudal slavery, or at any rate an odious monopoly imposed by force." This was not mere talk. It was followed, in 1793, by the complete freeing of the Scheldt and the Meuse to all riparians—France herself being a riparian in each case, for the Scheldt was naturally navigable up to Valenciennes. Somewhat similar rights were extended, in 1795, to all riparians on the Rhine—France herself, of course, being again a riparian; and in 1797 the freedom was extended, so far as France was concerned, to the ships of foreign nations, though Holland was able to make the privilege valueless.

The original Decree had not pressed the precise question of internationality. But, if the general principle holds—that a great navigable river cannot be monopolised by a single political unit against riparians, even if they are its subjects and of alien "race"—still more must it hold when the river in question is fully international, flowing through or between two or more States. Of course, Rhine, Danube, and Vistula do both.

As a matter of fact, in Europe this principle has been generally accepted for the last century except by Holland. Prussia and Saxony agreed about the Elbe in 1815, and the agreement was extended to Austria, Hanover, and Denmark in 1821. Prussia, Hanover, and Bremen made a similar agreement about the Weser in 1823; and Spain and Portugal made similar agreements about the Tagus and the Douro in 1829 and 1835. Holland, however, has a tarnished record.

One has not an atom of sympathy with the arrogant German demand that "small nations must not be allowed to interfere with the development of great nations, least of all with that of the greatest of nations," and that Holland—simply on the ground of her small size—should be robbed of her three estuaries in the interest of Germany. But neither has one an atom of sympathy with the Dutch habit of taking advantage of that small size to behave in a mean and unreasonable way on the assumption that no Power except Germany would use force against such a little people. I would like to illustrate the position by an analysis of the problem on a canal, for one must include straits and canals with rivers. Their inclusion may involve some difficulty, but in the most serious case the difficulty is already largely solved. I refer to the Panama Canal during the second year of the war, when British shipping was exactly half as large again as U.S.A. shipping, amounting to very nearly 42 per cent. of the whole traffic. The total result of the war, however, has been a loss of over 5,200,000 tons of British shipping, involving a reduction of 13·5 per cent. in our carrying power at sea, while the U.S.A. tonnage has increased by nearly 6,730,000 tons, *i.e.* an increase of 382·1 per cent. in the U.S.A. sea-going tonnage (June 1919).

The case which I propose to analyse is that of the Terneuzen Canal, and I wish to press it with all possible emphasis, because it shows a typical case of quite natural—and, therefore, almost pardonable—human

selfishness; and because its supporters are guilty of an extraordinary blindness to their own mercantile *advantage.*

Ghent is the second port in Belgium, and the first industrial town in Flanders. In the days before the separation of the two countries it was connected with Terneuzen, *i.e.* "open-sea" navigation on the Scheldt, by a canal twenty miles long, of which rather more than half was in "Belgian" and rather less than half in "Dutch" territory, the actual sea-connection being—unfortunately—in the Dutch territory.

At the time of the Franco-Prussian War the Belgians decided to enlarge the canal, but had to *waste eight years*[1] in obtaining the consent of the Dutch to the undertaking. Even then the consent was given only on the condition that the Belgians should pay for all work done by the Dutch, give an annual grant of some £13,000 for the upkeep of the new works, and grant Terneuzen a reduction of rates on Belgian railways! Some twenty-five years later it became necessary again to enlarge the canal; this was begun in 1895 on condition that Belgium again paid all the cost, that the Dutch had the right to close the locks "whenever they deemed it useful to safeguard Dutch interests," and that various other concessions were granted, *e.g.* about the Antwerp-Rozendaal railway; and the complete agreement was signed in 1902. The total cost was £1,600,000, a large proportion being spent *on the canal port at Terneuzen*; but the control is entirely in the hands of the Dutch, the Belgian part of the canal is both broader and deeper than the Dutch part, and the larger Belgian boats even now cannot reach Terneuzen! That is to say, after all the cost, the concessions, the delay, etc., the trade of Ghent is still hampered, and may be cut off at any moment. Of course, the stupidity of the Dutch in thus crippling their own trade is unpardonable; but what about Belgium? Even then her boats have only reached the Scheldt—a river of little use to Holland, but vital to Belgium.

I am anxious to press this case because the two little countries have managed to live together in peace in spite of the serious "international servitude" of Belgium to Holland, and because practically everything that Holland had done up to 1914 had been *quite legal.*

Dutch officials claim that "Belgium was given absolutely free navigation in 1839, and has enjoyed it ever since"—that "Belgium has in no way been made to feel that she had to use the waterway of a neighbour to get access to the sea,"—and that "Holland had been perfectly right in asking Belgium to pay for improvements on a canal which admittedly (!) serves almost exclusively Belgian interests."

I submit that, if Belgium has to pay almost the entire cost, she ought to have almost the entire control; that the profit on the traffic is large, the tonnage of Terneuzen being relatively greater than that of any other Dutch port, even Rotterdam; that a considerable part of the cost has been due to the fact that the canal—originally a distributary of the Lys—has formed part of the Dutch polder system; and

[1] A fraction of this was due to internal rivalries between Ghent and Antwerp.

that, under international control, the total costs would have been met out of the profits!

Further, I submit that navigation has *not* been free for Belgium. Facilities have been both denied and delayed. For instance, in January 1906 the Belgian Government asked the Dutch Ministry of Finance to forgo custom formalities, with all their delay and expense, on cargoes moving directly and only between Ghent and Antwerp; in January 1907 the request was refused. Similarly, a demand for fog-signals at Terneuzen was refused.

Refusals have, however, been very rare. Preposterous delays have been more or less normal. For instance, a request for permission to dredge a sandbank made on November 11th was granted on the following September 17th; one made on July 9th was granted on December 2nd. These are trivialities, but typical. Even the dimensions of the Dutch part of the canal prevent real freedom of navigation. No doubt these dimensions were originally agreed upon by a mixed body of experts, and accepted almost verbatim by the Dutch Government in 1895; they were somewhat modified in 1902, though at the time Holland made some difficulties about the export of Dutch cattle a ground for refusing to enlarge the canal, and the 1902 Convention was not ratified; and, thus modified, the scheme of 1895 was completed in 1910.

Under international control all unnecessary formalities due to riparian sovereignty would have disappeared, all *necessary* safety would have been immediately provided for, *e.g.* by dredging or fog-signals; and all improvements would have been adopted on their merits. In the absence of international control, Belgium has been subject, as I have shown, to a gross "international servitude," which has involved her in continual—even if trivial—expenses and annoyances. And yet Holland had, practically from first to last, acted with *perfect legality*. If such things are legal, is it not time that they were made illegal?

It has been typical, too, that, when the Dutch have granted any facilities, it has been done by a specific treaty, *i.e.* done as a matter of policy, not of justice. It was from this point of view that they agreed to the Lek and the Waal being recognised as the proper mouths of the Rhine. This emphasis on policy rather than on justice has not, however, been confined to Holland, though she alone still adheres to it. In Europe, in America, in Africa, and even in Asia, there have been, first, attempts to enforce a so-called political right of sovereignty against neighbours, *e.g.* on the Mississippi by Spain, on the St. Lawrence by us, on the Amazon by Brazil, on the Zambesi by Portugal, and then special conventions somewhat on the lines of a Treaty of Commerce. Such treaties grant commercial facilities, and power of navigation is such a facility; but if the navigation is on a great continental feature, such as an international river, surely the particular facility should be admitted *without* any special treaty.

This claim has been specifically put forward on several occasions. For instance, by the Treaty of Paris (1763) we had the privilege granted to us of "navigation on the Mississippi to the sea," and "*to* the sea"

meant "*out onto* the sea." When the river passed under the control of the United States, the conditions were altered. Spain had granted no such facility to them, and she claimed the *political* right to block the estuary against them, while Jefferson claimed that they had a *natural* right to use the whole river, *i.e.* had such a "right in equity, in reason, in humanity." The same question arose on the St. Lawrence, where we claimed the political right to block the lower river against the United States in 1824. The case is specially important because Adams at once admitted the *political* right, *i.e.* the riparian "sovereignty," but claimed—as Jefferson had done—a *natural* right to use the river itself, a right which he based on necessity and on the support of the political Powers of Europe as formulated in many conventions and agreements and commercial treaties.

There had been so many of these that it had become possible to generalise as to a common principle—really the principle of justice; and so the Treaty of Paris in 1814 and the Congress of Vienna had adopted the principle, and had passed general rules in sympathy with it, rules which have been applied to many rivers and even to canals—*e.g.* in the old kingdom of Poland. In the particular case of the St. Lawrence, the water right would not cover any right of portage; but, of course, the international boundary comes to this river from New York State below the last of the rapids.

In 1851 Brazil claimed the political right to block the mouth of the Amazon, but this was universally condemned as a gross misuse of the right of riparian sovereignty, for the mouth of the Amazon is even more truly than the Dollart an arm of the sea—so truly that it separates two distinct faunas; and as the Plate was declared free in 1852, Brazil could not in decency exercise her dubious "right." It was not formally given up, however, till 1867; and it lies implicitly behind the recent so-called "concessions" to Bolivia.

Portuguese law raised a similar difficulty in 1883 on the Zambesi. Of course, Portugal was our oldest ally, and our relations were very friendly; but, though she neither controlled nor traded with the interior, she claimed the political right to block the estuary against us, and we admitted the *political* right so far as to consent to her imposing duties—which, in theory, might have been prohibitive of all trade.

The Zambesi is specially interesting because it was concerned with one of the first of those land-corridors, about which there has been so much discussion lately—the "Caprivi finger." Every one except our lawyer politicians knew the real object, the certain meaning, and the probable result, of our conceding that strip to Germany—though most of us pictured German troops marching eastward along it to cut the "Cape-to-Cairo" route in Rhodesia, rather than Rhodesians riding westward into Ovamboland. But theoretically the Germans made a demand for access to navigable water on an international river, and we recognised this as a reasonable demand, and granted it. Here, again, we stand historically in a position of great moral strength. Further, if we accept international land-corridors and international air-corridors,

we must accept also international water-corridors, such as a navigable river or a narrow strait.

I do not want, however, to press an African example, partly because I do want to repudiate entirely the application of the Berlin Conference to any rivers outside Africa. For in 1884 Africa was essentially a virgin continent, and its inhabitants were completely ignored—in theory by all the deliberators, and in practice also by the nation which had engineered the Conference. For one of Germany's essential objects was to converge on the Congo, and squeeze out Belgian interests; and eventually, to do that, she did not hesitate to employ the most unscrupulous propagandists in this country on "Congo atrocities." It was, therefore, part of her scheme to press—what was accepted by the Conference—that the Congo should be open to all flags for all commercial purposes, and that *no riparian rights* should be recognised. It was equally to her interest that the International Committee of Administration agreed upon should never be set up, and it never has been; and, of course, in 1911 she used the trouble which she had provoked in Morocco to acquire 100,000 square miles of the French Congo, so that she became a territorial Power on the west as well as on the east.

The whole question has two aspects—(1) the freedom of the actual navigation, and (2) the administration of the river. The former is largely a matter of equity, and so did not appeal to the Dutch or Portuguese lawyers; the latter is largely a matter of law, and has been much complicated by legal subtleties. But the two are closely connected, for the European rivers with which we are specially concerned, all have a lower course over the plain and an upper course involved in the folds and blocks of Central Europe. They are, therefore, important in the one case merely as carriers by water, and—all things considered, and in spite of superstitions to the contrary—are probably dearer as well as less flexible than the carriers by rail that cross them from west to east; thus the quantity of food-stuffs that reached Berlin —or New Orleans—by water in 1913 was quite insignificant. In the other case, however, they are of supreme importance, for their valleys focus the whole commercial movement, *e.g.* of Switzerland, both by rail and by water. This puts the people of the upper river-basin commercially at the mercy of the holders of the lower; at least a third of the Swiss imports before the war were from Germany, and a fifth of the exports went to Germany—much, in each case, done under what the Swiss felt as "compulsion."

In this particular case the people of the Rhine delta were also—politically—at the mercy of the Germans. For the natural outlets of the Rhine basin, such as Rotterdam and Antwerp, had taken on naturally the international character of all great ports, while the river-towns behind them, such as Cologne and Frankfort, were nurseries of intense national feeling, most carefully and criminally fostered by the Government with the declared object of presently imposing that "nationality" upon the "internationalised" port. One way of entirely undermining a position offering such opportunities to the unscrupulous is international control, with its impartial improvement of the waterway *on its own*

*merits*. Thus, in 1913 nothing like 1 per cent. of the navigation on the Rhine was British, while over 65 per cent. was Dutch; but the deepening of the Rhine up to Basel to admit sea-going vessels, *e.g.* from London or Newcastle, would instantly free the Swiss from their slavish dependence on, *e.g.*, Westphalian coal.

It is the political aspect, however, rather than the economic that I want to press for the moment. The economic aspect is useful only because it can be presented more easily in a statistical form, while the historic—though equally, if not more, illuminating—cannot be applied to recent events. We can see now that Peter the Great did not provide "a gate by which (his) people could get out to the Baltic," only one by which foreigners got into Russia; but we cannot have similar knowledge of the political value to Bohemia of the economically invaluable Elbe-Moldau. We can note, however, that it is essentially a way *out*, for the quantity of down-stream traffic (*e.g.* lignite, sugar, grain) is five times that of up-stream traffic (*e.g.* iron, cotton, oils).

The agreements already mentioned, with regard to Elbe and Weser, Tagus and Douro, show that freedom of navigation has been granted as a reasonable courtesy for many years by nearly all civilised Powers, though even to this day Holland has persistently blocked progress by her stupid commercial policy and her unique position at the mouths of Rhine and Maas and Scheldt; and the essential principles are illustrated by the irrigation laws of Australia and the United States, where every one now admits that the individual State cannot have any local standing, any riparian claims, as against the Commonwealth. All States, whatever their size or wealth or population, must be equal, though the natural advantages are with the upper riparians for irrigation as with the lower riparians for navigation.

The serious administrative difficulties are two—concerned respectively with the riparian sovereignty and with the different geographical conditions of different rivers or different parts of the same river; *e.g.* you can easily decrease the pace of the Rhine above Mannheim, but not without increasing the susceptibility to frost.

Historically, Riparian Sovereignty, in the case of Rhine and Danube, is only a relic of Feudal robbery. When they first became part of the civilised world under Rome, there was no such thing as riparian sovereignty. They were public property, which had to be kept in order and improved; and for this purpose the Romans exacted dues, which were spent wholly and solely on the upkeep of the waterway. The Franks continued the same custom on the Rhine; but the Feudal system brought in a horde of petty princelings—as impecunious as German princelings have normally been—who completely upset the old *régime*, converted public into private property, and exacted every kind of tax and toll. Unfortunately, because Rhine and Danube had been frontiers for Rome, they had been associated with a strictly military control, and the legacy of this favoured the Feudal princelings—as it also helped to poison the whole political development along both rivers, for they got only the worst side of Roman civilisation. Now we must go back to the primitive conditions. If an international river is a world feature,

then its world relation is the first consideration. In that case, riparians must tolerate representatives of the whole world, or of such parts of the world as are most concerned with the particular river, on the executive for the administration of the river. In most cases, moreover, riparian sovereignty must be limited, even in the interests of the riparians themselves, for the presence of non-riparians on the executive may be, and has been on the Danube, of the greatest value in minimising friction amongst the riparians. In this respect France has played a most honourable part, generally supported by Britain, especially on the Danube, where, *e.g.*, Austria tried to exclude Bavaria from the deliberations about the river, and to dominate and intimidate the representatives of the lower riparians. Indeed, it was only the day before yesterday that we had the gratification of reading the German decision to "exclude French and British representatives from the Danube Commission on the ground that they had hindered the ships of the more important nations from obtaining *priority* of treatment." What greater compliment could have been paid us?

The fact only emphasises the vital point referred to above, that different parts of the same river have different conditions and may need different treatment, *i.e.* that even riparians have not all naturally equal use of the river, and that the strongest or the most favourably situated can grossly misuse their opportunities. The Dutch showed this on the Rhine in 1816, and the Austrians on the Danube in 1856. Obviously, such differences are, in themselves, potential causes of serious trouble; riparians have not necessarily and naturally real equality even when the executive consists of only one representative from each riparian State. The greater opportunities of expansion, political and economic, on the lower river may favour the growth of a stronger Power; and the State with the largest share of the river or the best position on it has already advantage over the others. For instance, the Dutch on the Maas and the Russians on the Danube have indulged in "voluntary negligence"; it was in this way that Russia blocked the mouth of the Danube, and Holland made it impossible for the Belgians to *continue* their commercial navigation on the Meuse down through Holland to the sea, though since the discovery of coal in Limburg the Belgians have—stupidly—turned the tables on Holland to some extent. A low riparian may no more monopolise or ruin navigation on the lower course of a river than a high riparian may poison or exhaust its upper waters. The river is a unit, and its unity is essential to the fulfilling of its duties in the evolution of world commerce; and therefore, it needs a unity of administration. This is best secured by a commision of riparians and non-riparians, and such conditions facilitate the use of a river as a political boundary.

Nearly all the important details involved in the internationalising of navigable rivers have been illustrated already in the history of Rhine and Danube, and in both cases France has been an admirable guide to Europe. On the Rhine, as I have mentioned, she abolished in 1795 most of the restrictions which had made the river practically useless even to riparians; and that she was not thinking only of her own interests was proved by her attempt—defeated by Holland—to extend

the freedom of the river to all nations in 1797. Again in the Convention of Paris (1804) France enforced unity of administration—sharing this with Germany on the ground that the river was of special concern to herself and Germany, as she has shared the administration of the Niger with us in recent years on the same ground.

The Rhine thus received a simple, just, uniform administration, which is a model for us now. All tolls were abolished except two—one on the boat and the other on the cargo—which were to be only large enough to meet the upkeep of the waterway, and were to be used for no other purposes. These tolls could be paid in each political area with the coin of that area, but a fixed ratio was maintained between the various coinages.

Of course in 1815 France was ousted from the bank of the river; and, in the reorganisation elaborated by the Congress of Vienna, Von Humboldt, the Prussian representative, adroitly introduced into the regulations for the Central Commission of Riparian Representatives words which were afterwards made to mean exactly the opposite of the freedom granted by France, and exactly the opposite of what our British diplomats at the time thought and said that they meant! Not only so; but during the sixteen long years while France remained more or less submerged, Holland was allowed to make the whole scheme ridiculous by the claim that "to the sea" did not mean "out onto the sea," and that a tidal estuary was "sea." The Regulations of Mainz gave each riparian State full sovereignty over its own part of the river, and limited the right of pilotage to the subjects of riparian States; and in 1868 the Regulations of Mannheim further whittled down the old liberal principles of France—to the disadvantage of non-riparians, although they were admitted to rights of navigation. The Revised Rhine Navigation Treaty of that year was still in force in 1913, administered by the six riparian States—Holland, Prussia, Hesse, Baden, Bavaria, and Germany (as owning Alsace). Even since 1871 Prussia, as the strongest Power, has hampered the development of non-Prussian ports, using even the most childish tricks with pontoon bridges, choice of wharves, accessibility to rail, etc., against other German States.

Since 1871, too, the Rhine has illustrated another important point—namely, that the traffic on an inland waterway depends largely, perhaps vitally, on the extent to which railways are willing or forced to co-operate; and this has a present importance even from a purely international point of view. One of the results of the Franco-Prussian war was that Prussia bought up a number of private railways in the Rhine valley, and eventually used the profits of the transaction to make a secret fund for aggressive purposes. Now, if properly administered as an international waterway, the Rhine will be perfectly free except for trifling dues on boat or cargo for the expenses of upkeep; and it will compete so favourably with the Prussian railways that their rates will have to be reduced to a minimum. This will cut hard at such differential treatment as has handicapped British trade in the last twenty years, and it will leave no surplus with which the unscrupulous can juggle.

Of course, the Rhine is essentially linked with the Meuse and the Scheldt—politically, economically, historically; and from what I have already said at length above it seems obvious that the Powers have long been too lenient or too timid with Holland, possibly because her purely *legal* position appeals to lawyer politicians. The Dutch base their claims to monopolise the estuary of the Scheldt on the Treaty of Munster (1648), but have greatly strengthened their legal position in recent years. The marriage of the Dutch queen to a German princelet was followed immediately by the intrigue that ended in Belgium definitely granting to Holland, in 1892, special rights on the Scheldt in time of war, and Germany strongly supported Holland in getting these rights extended between 1905 and 1908. But the Scheldt is merely an international river; it is navigable into France, and it was only by France waiving her claims in 1839, and proposing a dual control by Belgium and Holland—like that of the Rhine by France and Germany at the beginning of last century, and that of the Niger by France and ourselves now—that Holland ever obtained the power which she has abused. When Napoleon annexed Antwerp, he declared the Scheldt free; and the Rhine Regulations, when extended to the Scheldt, were interpreted as meaning "free for all flags out onto the sea." Even so, the Dutch raised every possible difficulty, and navigation had no fair chance until the railway from Cologne to Antwerp brought in the only kind of influence which the Dutch seem to understand.

We have, therefore, full knowledge of all the essential conditions necessary to ensure the proper administration of international rivers, and shall have no kind of excuse if we are caught napping or misled by plausible and "interested" tricksters. Amongst their last tricks is "the great difficulty of policing such a river, where a German boat may be stopped by a French official." That is not more terrible than a Roumanian boat being stopped by an Austrian official; and the experience on the Danube shows that there is really no difficulty at all—for the simple reason that offenders are always dealt with, naturally and reasonably, by officials of their own nation, just as the various European Powers have the right of jurisdiction over their own subjects in the Belgian Congo. In Article 25 the effete and pharisaical Berlin Act of 1884-5 provided that its regulations for the Congo "shall remain in force in time of war." To-day we are less ambitious, and desire only to further safe, easy, honourable intercourse, in time of peace, between nations that are unequal in size and population, wealth and power, situation and relation to navigation facilities. We have seen that one small nation may ill-treat another small nation from stupidity almost as easily and as grossly as a large nation may ill-treat a small nation from tyranny. Under the circumstances it seems necessary to remove from both the stupid and the tyrannical the opportunities for misusing such facilities; and the obvious way of doing this is to make international rivers international in use and in government. Commerce is already a prime factor in the evolution of Human Brotherhood. Progress towards that ideal may be gauged as well by the price of a banana or a piece of chocolate as by the number of sermons preached on the subject; the

sea is already free, made so mainly by British perseverance in clearing it of pirates; it only remains to make navigable rivers equally free, and the opposition comes mainly from those who have talked most loudly about "the freedom of the seas." But "the freedom of the seas" does not mean that war is to be removed only from that element on which land power is weak, while the land power may still block access to the free sea by the natural avenue—the navigable river.

---

## RUSSIAN CENTRAL ASIA.[1]

By Ella Christie, F.R.S.G.S.

*(With Illustrations.)*

Russian Central Asia is comparatively little known to the ordinary traveller, chiefly from the difficulty experienced by foreigners in obtaining permission to travel through it. For all Russian territory a passport was required, but those who desired to cross the Caspian Sea had to obtain a special permit from the Russian Government. This involved several weeks' delay, and notice of the intended journey had to be given to every police station on the route. At every stopping place the passport had to be given up, and was only returned on departure. My permit was passed, I was told, in a record short time, but it was *two* months before I was allowed to set sail from Baku, the port of embarkation on the Caspian Sea. I travelled alone, but at Baku engaged a converted Russian Jew as servant and to act as interpreter. He succeeded an Armenian whom I had engaged to travel with me through the Caucasus, but it would be hard to say which was the more useless, and both were arrant cowards.

A sail of sixteen hours or so lands one at Krasnovodsk, the starting point of the Trans-Caspian railway. The place somewhat resembles Aden with its bare brown rocks, and a similar guarding line of rocky islands in the harbour. The district possesses, as is well known, valuable oil wells. The railway was commenced in 1880 as a military one by Gen. Skobeloff, and originally was only intended to go as far as Askabad, but the rapid development of cotton-growing led to its being extended to the more fertile province of Ferghana, and its terminus is now reached at Andijan, a distance of 1200 miles, and about 90 from the frontier of Chinese Turkestan. Various branch lines were in contemplation in 1912, a specially important one being that destined to link up the Trans-Siberian by Semipalatinsk, while another was to connect Charjui and Kirki. The most direct railway communication with Russia proper is by Tashkent, Turkestan, Orenburg, and Samara. The Trans-Caspian line is suitable for a certain amount of heavy traffic, and the engines are powerful ones, built in Moscow. They are oil-

[1] Notes of an afternoon lecture delivered before the Society in Edinburgh on January 20, 1920. The illustrations are from photographs by the author.

driven, and to convey the supply pipes are laid along the line to various stations, or else it is conveyed in boiler-like receptacles on waggons. Scarcity of water is a difficulty to contend with in certain parts, and where well water is not obtainable tanks or vats are filled from the Murghab River at Merv, or the Amu Daria at Charjui, and taken by rail.

The railway carriages for passengers are fairly comfortable as regards the first and second class; the third and fourth leave something to be desired, but this does not prevent crowds from travelling. There are only two trains in the twenty-four hours. The carriages are Pullman design, and the seats are convertible into beds for night journeys, four in each compartment. Lighting is effected by one tallow candle in a lantern above each doorway; but robbery is so far guarded

Fig. 1.—Camels on the march in Turkestan.

against by a chain which fastens the door inside. Heating, which is usually overdone, is obtained by means of a stove at the end of each carriage. The line is not ballasted, but simply levelled up and the rails are spiked on to the sleepers, these being chiefly made of pine or larch from the Volga district. In parts the railway has to be protected from sand block by thick fences of thorn and scrub, planted at each side, which somewhat check the inroads made by sand storms. There is little vegetation for the first few hundred miles, except where the land is irrigated, and the only native fuel obtainable is from the roots of an insignificant-looking shrub called saxaul, which grows over the greater part of the desert stretches. Water of good quality is scarcely to be obtained from Askabad onwards, and all has to be boiled, even for washing purposes, as disease germs are apt to be contracted where this precaution is not taken. The Russians were doing their best to remedy this want by means of artesian wells.

The war of 1881 secured this stretch of country for Russia, and at Geok-Tepe was fought the last battle with the Tekke-Turcomans, when thousands of that brave people were slaughtered, and their fort razed to the ground. The country as far as the province of Ferghana is a vast sandy desert, bordered by a continuous chain of mountains to the south, where the railway in part skirts the Persian frontier. This desert is intersected by five rivers, the most important of which are the Amu Daria and Syr Daria. The last two fall into the Aral Sea, while the others are lost in marshes or form small lakes.

Askabad is the first town of importance, and its market-place is the chief centre of interest, owing to the various types of natives met with. The actual inhabitants of that part of the country are Tekke-Turcomans, a fine-looking race, in their red-striped "khalats," or long

Fig. 2.—Method of driving high-wheeled carts in Samarkand district.

coats, and huge busbies in black, white, or grey astrakhan. A branch of this race are the Sarts, who form the town dwellers and traders. Then in Bokhara, as well as in Samarkand, there is a large Jewish population, and in the former there is also a certain number of Indians engaged chiefly in the tea trade. Askabad is of importance as being on the principal trade route to Persia from the north, and the starting point for pilgrims to the Moslem shrine of Meshed, some two hundred miles distant.

The Tekke-Turcomans are not altogether nomadic, and live in huts of tent shape—kibitka, as they are called—made of bamboo frames, upon which are hung outside felt or grass mats, while inside they are lined with the carpets in the making of which the Turcomans are famed, though Russian taste and aniline dyes are fast destroying the native colouring. The people live chiefly on mutton, fruit, and vegetables, and their wealth consists of flocks of sheep and camels. Milk and butter

are not much in request, but a species of cream cheese is greatly used. The market at Askabad had a wonderful display of dried fruits; on one stall alone I counted six varieties of raisins. Walnuts, apricots, figs, white mulberries, and a fruit called puchars are also grown. Jam is made of green apricots, but the white mulberries for superstitious reasons are not touched. The melons grown in Turkestan are celebrated, and the natives have some method of preserving them fresh until spring. Of timber trees there are not many species, karagatch, or black elm, being about the only one of value. Its delicate branching gives a cobweb effect when the trees are leafless. Poplars are largely grown in the Russian cantonments, and one also meets with various willows, including

Fig. 3.—The Mosque of Sultan Sanjar, Old Merv.

a silver-leaved form, whose leaves have a strong aromatic perfume, called djidda.

We now come to Merv, one of the oldest cities in the world, and a rival in greatness to Baghdad. In the seventh century it reached its zenith under Arab rule, and its system of irrigation from the river Murghab was reckoned one of the wonders of the world. Now it is a vast plain of shapeless mounds, an occasional remnant of a building rising out of the débris. One of the most important ruins is the tomb of Sultan Sanjar, built by himself about the middle of the twelfth century. So enduring was it believed to be that he called it the abode of eternity. Sixty years after his death it was destroyed by Genghiz Khan, and earthquakes have not spared it; but the memory of the saint still lives in the hearts of the people, as is testified by the numerous offerings still laid upon his shrine. Merv is of importance as being the junction of a narrow-gauge railway to Khusk, close to the Afghan frontier. The Russians would fain have continued the line to Herat, and I believe had all the material at hand for so doing.

At Bairam Ali, or old Merv, was an extensive property belonging to the late Czar, upon which experiments of all kinds were tried as to fruit and vine culture. When the station was first started the services of Sir Colin S. Moncrieff were placed at the disposal of the Russian Government in order that he might advise as to irrigation. His counsel was of great use, as was afterwards proved.

Bokhara, a town of 100,000 inhabitants, acquired its renown from

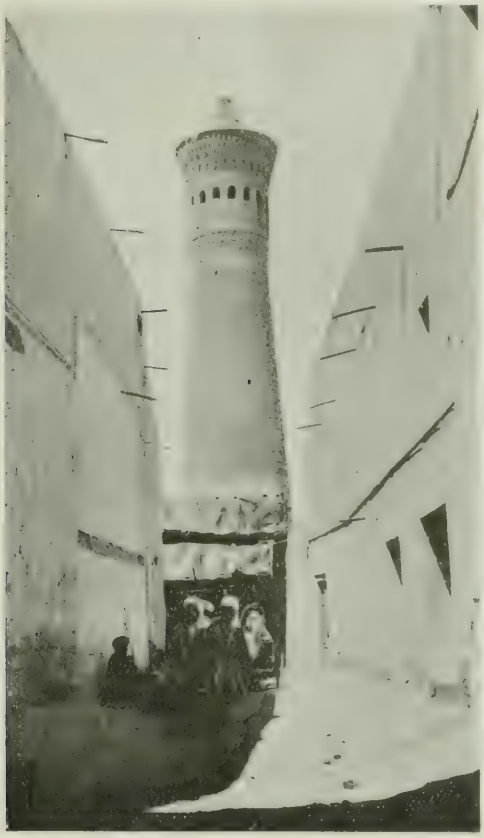


Fig. 4. The Tower of Minar Katan, Bokhara.

the ninth to eleventh century as the centre of religious and intellectual activity in the sphere of Islamism, a reputation which it still to some extent preserves with its 360 mosques and 103 colleges. The mosques are open-fronted, and in connection with each is a dirty tank, the tanks forming the water-supply of the town, save in the few cases where a householder is fortunate enough to possess a well on his own premises. The tank water is carried round the town in skins, and sold at the rate of one rouble per 100 skinfuls. The tally of the skins supplied is kept either by lines on the doorpost of the house, or

by means of a notched stick, the money being paid to the municipality. Round the tanks are placed the barbers' shops, the barbers being the surgeons of the community. An incident which I witnessed illustrates the dangers which lurk in the dirty tank water. A barber was operating on a patient afflicted with Guinea-worm (*Filaria*), a slender elongated parasite producing tumours, usually found on the legs. The worm is removed by being twined round a stick, a few inches a day. In the case observed the worm after removal was thrown into the tank! It is only necessary to add that infection is normally due to foul drinking water, the young worms finding their first host in small water animals. A protest on my part was quite ineffective, my guide pointing out that other worms had already been flung into the tank.

Bokhara is surrounded by walls, and the eleven gates are still shut at sundown, after which time the watchmen pace the tortuous lanes, beating drums to show that they are awake. In 1220 the town was destroyed by Genghiz Khan, and Tamerlane in 1370 transferred his capital to Samarkand. Minar Katan, a tower 210 feet high in this city, is the one from which Conolly and Stoddart were flung in 1841. These men had been sent by the East India Company on a peaceful mission to the Emir of Bokhara in 1837, but he imprisoned them for over three years, and then had them executed in Bokharan fashion; this mode of execution was in vogue until thirty years ago.

The streets of shops are arched over, and lighted by circular openings in the roof. Carts, carriages, and animals of all kinds jostle along to the cries of *pusht, pusht*, which means "take care"—a necessary warning, as the only refuge for foot passengers is a raised step which is led along the front of the open shops. Upon this one can sit and bargain comfortably until perhaps a heavily-laden Bactrian camel comes along threatening to sweep off everything before it.

The foundation of Samarkand is lost in antiquity. It was captured by Alexander the Great in 329 B.C., and he established himself in what must then have been a strong citadel and is now known as the Afrosiab, where interesting remains of occupation are still found. In the seventh century Samarkand was in the hands of the Arabs, and in 1370 Tamerlane made it his capital and embellished it with buildings worthy of the age. Many of these have suffered grievously from earthquakes, but were only the Reghistan or market square standing, a visit to Samarkand would be worth the journey. Three sides of the square are formed by the façades of the old mosques, richly inlaid with blue tiles. The façade of Chir Dar is 72 feet in height, and was built in 1616. The brilliant colour of its blue tiles with a gold ground make a dazzling effect in the Eastern sunshine.

Tamerlane is buried at Samarkand, and an inscription above the gateway of his tomb tells that it was the work of Abdullah, son of Mahmoud of Ispahan. The tomb is a block of dark green jade, and around the edge is an inscription giving Tamerlane's name and titles, together with his ancestry and the date of his death; to the right is a slab of grey marble, with an inscription showing it to be the tomb of Ulea Beg, his grandson, who died in 1449. In a small building near

by are the tombs of Tamerlane's wives. The walls of Tamerlane's tomb are lined with alabaster, and a border of engraved jasper tells of his deeds.

Shah Zindeh is a series of eighteen tombs erected by Tamerlane in 1323, and among them are those of his nurse and two of his sisters. The tiled façade of one of the tombs displays distinct Chinese influence, owing no doubt to Bibi Khanum, Tamerlane's Chinese wife, to whom

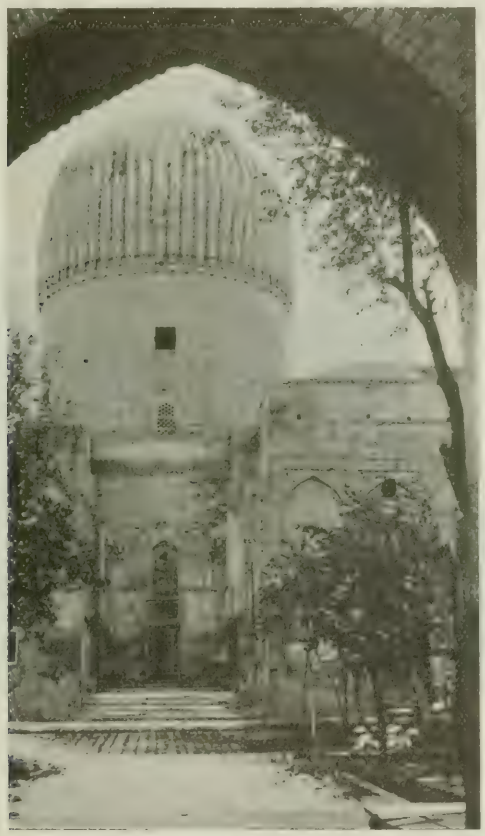


FIG. 5.—The Tomb of Tamerlane, Samarkand.

we also owe the fragments of what must have been at one time a magnificent building, the jagged fragment of the marvellous blue dome of which is visible, rising above the greenery, as soon as Samarkand is in sight.

Another interesting link with those times is the quadrant of the observatory built by Ulea Beg, the grandson of Tamerlane, at the instigation of his mother, a remarkably clever woman according to accounts still extant, who was present at the opening of the observatory in 1437. The height of the cutting is about 50 feet, and the quadrant was marked

to 80°, the remaining degrees being imperfect. It is made of grey marble, and is as perfect as the day it was cut. It was only unearthed in 1910.

Kokand, a town of 82,000 inhabitants, had its own Khan until 1876, when it was taken over by Russia, and is, after Bokhara, the second town of importance in Turkestan, and now the centre of a great cotton trade. Fully a third of the cotton required by Russia was being produced in Turkestan in 1912. The beginning of cotton-growing in the region was due to a Mr. Gourdet, who in 1869 sowed 50 seeds from

Fig. 6. Dome of Mosque at Turkestan. The inscription shows that it was the work of a Persian artist.

the United States in his garden at Tashkent, and found that the plants flourished greatly.

The town of Turkestan is celebrated for its mosque, built by Tamerlane in 1397 over the grave of Sheikh Jassari, famous as the founder of a Moslem sect, who died in 1120. He is the special patron of the Kirghiz. The façade of the mosque is 100 feet high, flanked by towers with battlemented tops. There is an inscription in blue and white tiles around the dome, of which these words only can be deciphered, "The work of Hodje Hussen, native of the city of Shiraz." A great-granddaughter of Tamerlane, who died in 1485, is also buried here.

A very fine bronze font, cast in five pieces, stands in the centre of

the mosque, with various inscriptions around it, one testifying that it was the work of the artist Abdul Aziz, whose father was a native of Tabriz. The doors were richly inlaid, but I believe the original ones were taken to Petrograd. This mosque is considered the holiest in Central Asia, and, being in the citadel of the town, it served as a point of defence. The completion of the mosque was contemporaneous with the death of Tamerlane, and with him ended the erection of such monuments to his greatness.

Tashkent is what one may call the metropolis of Central Asia, being a large town with European shops and a military settlement.

After spending several months in the country on two occasions I feel that it is only right to point out that a great work was being done by the Russians in developing its vast reserves of wealth. The natives were allowed a considerable measure of self-government; in fact, beyond having to pay a certain tribute, they did not appear to be further interfered with, at the same time a military power was there to be called upon if necessary to maintain peace. The native laws were observed even when to our ideas somewhat severe, as in the case of theft. This is uncommon, a fact which is perhaps explained by the penal code, which ordains that for the first offence the right hand is cut off, for the second the left hand, and for the third the culprit is hung on the gibbet, which forms part of the equipment of the market-place in most towns. The day chosen for executions is a market day.

A market was also being found by the Russians for the produce of the country, cotton-growing was fast developing, mining engineers were employed to prospect, and wheat-growing encouraged, so that the plains of Central Asia were well on the way to become what they had been in the past—the sources of vast supplies to the markets of the world.

From Russian officials I always received every courtesy and help, though I fear not unmingled with suspicion, as their own spy system was largely recruited from women. Strangers are uniformly treated with kindness by the hospitable Turcomans and the good-natured Sart.

In selecting Russian Central Asia for the subject of this afternoon's lecture, I was led to do so for two reasons, first, from the absorbing interest of the country itself, and second, from the immensely important part it plays in the world upheaval. We have been so accustomed in those last five years to regard the western scene of fighting as of paramount importance that possibly we may have overlooked this Asiatic area, in which, to my mind, lie possibilities of not less magnitude. For years past the presence of an ever-increasing Russia in Central Asia has been viewed with suspicion, but in my opinion Russia was content, or would have been for many years, to develop its vast acquisitions of territory, while always maintaining the tendency to push eastwards. But an enemy of real danger has now appeared there in the form of Bolshevism, an enemy that is bounded by no point of the compass. We know little of what is really happening in those regions, but, according

to recent accounts, the country from Krasnovodsk on the Caspian to Samarkand is in the hands of the Bolshevists and their devastating propaganda. The movement unfortunately appears to be well organised, and, considering that 90 per cent. of the Russian population can neither read nor write, can scarcely be the work of an illiterate mob.

I would like to draw attention to the numerous German colonies scattered throughout the country not only in Russia proper but also in Central Asia. Now, whether these colonists be there as merchants or missionaries, they are Germans first and their other vocation ranks second. It is a curious coincidence that of two German colonies planted in Central Asia one is in the Khiva district and the other on the route to Siberia, both on important lines of communication, and the former is situated in the midst of salt marshes, about the most unlikely spot to select for cultivation.

Khusk, of course, commands India, *via* Afghanistan, and Askabad Persia, *via* Meshid. We can only trust that the danger may be fully realised before it be too late, and that the necessary measures may be taken to avert what might be overwhelming disaster for the world.

## SURVEY WORK IN MESOPOTAMIA DURING THE WAR.

By Lieut.-Col. G. A. Beazeley, R.E.

(*With Illustrations.*[1])

Conditions under which survey operations were carried out in Mesopotamia were very different from those existing on the Western front; the whole country was unsurveyed, the only maps available being the Indian degree sheets, on the $\frac{1}{4}$-inch scale—a patchwork compiled from reports and travellers' sketches and skeleton irrigation surveys. Indeed, with the exception of small areas in Arabistan and along the Turko-Persian boundary, no survey worthy of the name existed.

Until triangulation based on Fau could be pushed up the more important rivers, Sir William Willcocks' irrigation maps were useful in providing a skeleton to tie down the preliminary air-photographic maps and advance survey reconnaissances, and for supplying approximate heights.

The work that fell to the surveyor in Mesopotamia, especially if he had the good luck to be on the Tigris front, was extremely interesting, and quite exciting and dangerous enough at times for the most ardent spirit. The parties got well known to the Turks, and occasionally had batteries told off to follow them about with their shells.

The area dealt with in this paper covers nearly the whole of Southern Mesopotamia up to the line Hit-Faluja-Samarra-Tuz Khurmatli. Gaps still occur in places where survey work was impossible at the time,

[1] In reading this paper reference should be made to the map of the Baghdad Railway which appeared in the issue for March 1919.—Ed. *S.G.M.*

owing to the hostility of the Arabs and the inadvisability of detaching fighting troops to act as escorts; for such troops could not easily be spared from the fighting fronts or lines of communication. Portions of SW. Persia and the eastern fringe of the Arabian desert were also surveyed by the author's party.

Other areas in Mesopotamia and Persia have been surveyed in addition to those mentioned, but they do not come within the scope of this article, as the writer was captured by the Turks, and took no part in the work.

War surveys must primarily satisfy the military requirements of the field force, and after this advantage must be taken of any opportunities to build up a reliable map of the country. Thus gaps still occur in the maps which are doubtless being filled up, now that the fighting is over.

The Survey of India (including some of its officers who had temporarily reverted to military duty) undertook the whole of the survey work and mapping carried out in the areas mentioned above.

At the commencement of the campaign a survey party was formed under Colonel F. W. Pirrie, C.M.G., C.I.E., consisting of about 6 officers, 20 surveyors, and 200 men, to deal with all the field survey required. The party was organised into three detachments as follows:—(1) Under Capt. W. E. Perry, M.C., R.E., with the Nasiriya column, with the town of that name as headquarters; (2) a small party under Lieut.-Col. H. H. Turner, R.E., on the Tigris front, with its headquarters at Ali Gharbi; and (3) the remainder of the party under Col. Pirrie, operating in the area behind those two fronts.

By September 1916 a considerable area of country on the $\frac{1}{2}$-inch scale had been surveyed, and triangulation pushed up as far as Kut, on the Tigris, and Nasiriya, on the Euphrates.

When General Sir Stanley Maude took over the command of the expeditionary force, the party was strengthened, and from October onwards the survey *personnel* was organised and carried on as follows:—(1) The Euphrates detachment as before, till the fall of Baghdad, when work was pushed rapidly forward up the Euphrates, and carried as far north as Hit and Faluja, and east as far as the Tigris. (2) Col. Turner was invalided to India and his place taken by Lieut.-Col. (then Major) G. A. Beazeley, D.S.O., R.E., in October 1916. His small party was attached to G.H.Q., and was responsible for survey work on the Tigris front till some time after the fall of Baghdad. In May 1917 his party was considerably strengthened, and its operations embraced all the country east of the Tigris, and as far north as the line Samarra-Tekrit-Tuz Khurmatli, and included a small portion of Persia east of Kizil Robat. (3) The remainder of the party, under Col. Pirrie, continued to operate on the unmapped area in the rear of these two detachments. After the fall of Baghdad Col. Pirrie was appointed Deputy Director of Field Surveys, in addition to his other duties, with headquarters at Baghdad. (4) In September 1916 Lieut.-Col. P. C. Gunter, O.B.E., R.E., was placed in charge of map compilation under G.H.Q., and became responsible for all maps required by the field force, compiled from all available sources.

A short description of the country which came under the sphere of survey operations will not be out of place. It may be divided roughly into five categories as follows:—(1) The swamps of lower Mesopotamia and the water-logged date groves along the lower reaches of the Tigris and Euphrates; (2) the perfectly flat arid wastes away from the river banks, stretching from the swampy area in the south, right up almost as far north as Samarra. To the north of this limit we come to a gently undulating plateau gradually merging into the Jezireh, a rising plateau between the Tigris and Euphrates; (3) the narrow cultivated belt along the Tigris, Euphrates, and Dialah, with the canals fed from those rivers; (4) the barren cut-up foothills bordering on W. and SW. Persia; (5) the eastern fringe of the great Arabian desert to the west of the Euphrates, which is undulating, and rises gradually as one penetrates towards the west.

That ancient Mesopotamia was extraordinarily fertile and well populated is plainly evident from the remains and traces of numerous canals and cities met with everywhere. The wonderful system of canals that once made it the granary of the world should prove of great interest to archæologists, and these will be dealt with later on.

Bitterly cold and damp as the country can be in the winter months, the heat in the summer is very great, the thermometer sometimes registering as much as 125° in the shade. The winds are scorching, and combine with the terrible dust to make the climate very trying to the health under active service conditions. During the summer months at Samarra in 1917 work had to commence at 4.30 A.M., and by 10 A.M. instruments and metal work got too hot to hold, and no outdoor work could be resumed till within an hour of sunset.

The initial point of the survey operations was the Fau telegraph office, at the mouth of the Shatt-el-Arab, the geodetic co-ordinates of which had been previously accurately determined by the Survey of India. The longitudes of Baghdad and Kermanshah were obtained by wireless from Fau by means of pre-arranged signals and chronometers, the latitudes of these places having been previously determined. On these three places the whole of the triangulation was adjusted. The lines were carried up the more important rivers, and were also run at intervals into the deserts on either side whenever it was possible to secure armed escorts. These, however, could not always be spared.

No geodetic triangulation was attempted, nor first-class spirit-levelling; the destructive proclivities of the Arab, the unsettled state and the nature of the country, put all scientific survey out of the question. All that could be attained was tertiary triangulation, small theodolites, both vernier and micrometer, being used; short bases were measured with invar tapes at intervals, and the minimum number of angles observed consistent with reasonable accuracy in the results of the work. Triangulation was not only hampered by the flat nature of the country but by "mirage," especially in the hot weather, when distant objects disappeared at 10 A.M., and did not re-appear till 4.30 P.M.; this was accentuated by the extraordinary flatness of the ground.

Dreary drab country it is too, mounds and mud-huts being only occasionally met with.

These conditions necessitated a very large number of short-sided triangles, making rapid progress impossible. Surveying parties had to be in by dark or remain out till dawn the next day, in consequence of sentries being given strict orders to fire at sight during the hours of night. This was necessary owing to prowling Arabs, who were arrant thieves. They frequently removed flags, poles, and pegs used for marking stations, and thus added new difficulties to the work. They even sometimes removed the tins of the holes in the "putting" greens of the golf links which were extemporised when a prolonged halt in one place admitted of the game being played.

Rain made the ground very slippery and muddy, and greatly retarded the walking powers of men on foot, and the progress of mechanical and wheeled transport. The writer of this article was once up to his shoulders in mud and water, in a hole into which his Ford van had run, heaving up the back wheel to enable his men to extricate the vehicle. It took two hours to do 17 yards that evening, two more holes having to be negotiated, and it was raining steadily at the time.

It can readily be imagined that under these circumstances it was impossible at times for triangulation to keep up with rapidly-moving columns, and other means of measuring horizontal distances had to be used until triangulation could again be resumed. The gaps left were subsequently filled up by the detachments working in rear, who completed the triangulation brought up from Fau.

Whenever distant prominent objects were visible to a flank they were often used as pivots, and enabled the advance triangulation to be pushed forward more rapidly. These points were generally minarets or domes of "Imams" (saints' tombs); occasionally an exceptionally tall, or isolated, palm tree, or a cairn on a high mound, was used.

North of Baghdad some of the junior officers of the provisional service in the Survey of India were very successful in cutting in prominent objects far ahead and utilising them to such advantage as to enable their triangulation to keep pace with moving columns. As much as fifteen or twenty miles a day were accomplished in this way, the results when worked out being accurate enough for all practical purposes. Two of these officers, Lieuts. Booth and Strong, were experts in this line. They put in exceptionally good work throughout the campaign, and were indefatigable.

In the swamp areas the surveyors worked from boats, the legs of the plane tables being lashed to bamboos driven in to the bottom under the shallow water, where it did not exceed 10 feet in depth.

It was found impossible to locate the actual site of Willcocks' spirit-levelled bench marks, but the mean obtained from a group of three or four, obtained from one triangulation station, generally gave fairly reliable values to work from, and prevented errors accumulating in the heights deduced from the triangulation. The slope of the country was very slight; Baghdad, though 300 miles from the sea, is only about 108 feet above mean sea level.

Later on in the campaign Ford vans were used, and made it possible for the triangulation to proceed at a more rapid rate, as less time was required in selecting and marking stations and travelling to and fro observing.

When triangulation had to be dropped distances were measured with a cyclometer fitted to a bicycle wheel, direction being maintained by a 6-inch compass needle. In skilled hands a very accurate map can be prepared in this way, if deviation of the compass from true north is worked out every evening by astronomical observations. Towing a bicycle wheel behind a mechanical transport vehicle was tried, but soon put the cyclometer out of action. The best means of measuring distances with a wheel is to fit a revolution counter to the wheel of a "tonga" or covered cart to seat four persons, the circumference of the wheel being known. The larger diameter of the wheel gives more accurate results than a bicycle wheel, and jars due to rough ground do not affect this form of measuring device. The surveyor and his two men also get a rest in the conveyance from point to point, and can cover much more ground and at a far more rapid rate than on foot pushing a bicycle wheel.

This form of transport has one great advantage over a motor vehicle, *i.e.* its ability to get over the sand and irrigation channels which so often bring the latter form to a standstill. The small party was subsequently nicknamed the "trick cyclists," and their approach sometimes gave rise to amusing comments.

The areas of survey based on (1) isolated bits of triangulation, (2) distances measured by wheel, were eventually fitted into the regular triangulation and adjusted; more complete surveys of the areas were also carried out.

The normal scale for areas outside the radius of military operations was $\frac{1}{2}$-inch to 1 mile. The 1-inch scale was used where military requirements demanded it. Along the Tigris front, over ground where fighting was actually taking place or was likely to occur in the near future, the 3-inch scale was adopted, primarily to enable the batteries to fire by taking measurements straight off it. Even larger scales were demanded and issued in special cases. All maps on the 3-inch and larger scales were compiled at first from air-photos tied down to fixed points, and subsequent editions were published after the maps had been revised and supplemented by ground survey. Later on the 3-inch maps were compiled from a combination of both or from ground survey only. The Air Force were told what areas to photo, and then handed copies to the map compilation department, who called on the Tigris front detachment to fix points within the photographed area, or used points fixed in advance.

These fixed points enabled the map compilation department not only to tie the photos down but to reduce each photo to the correct scale. Blue prints were then issued, the essential details being traced on boards and supplemented by ground survey. The contours were also put in, sometimes roughly by eye from the photos themselves in the shape of form lines. These maps proved most useful to the artillery for ranging purposes and in locating enemy targets.

An officer or surveyor would sometimes be sent out into "No Man's Land" to fix points in enemy territory which could not be fixed from our own lines—an exciting job and not without risk of capture or surprise, for sometimes the returning parties had machine-guns turned on them from our own lines, and had some very lucky escapes.

The rapid way in which maps were reproduced and issued to the field force speaks very highly of the organisation under Col. Gunter. On reaching Baghdad a suitable building was allotted, and a machine press, driven by an electric motor, installed in addition to hand-presses. His drawing and reproducing staff was largely strengthened by craftsmen from home, but some of these had to be trained after joining.

Owing to the cut-up nature of the Jebel Hamrin Range and other similar hills, a good deal of hard work was thrown on the surveyors contouring the ground; but over the great Mesopotamian plain no contouring was necessary except along the southern fringe of the Jezireh, in the neighbourhood of Samarra.

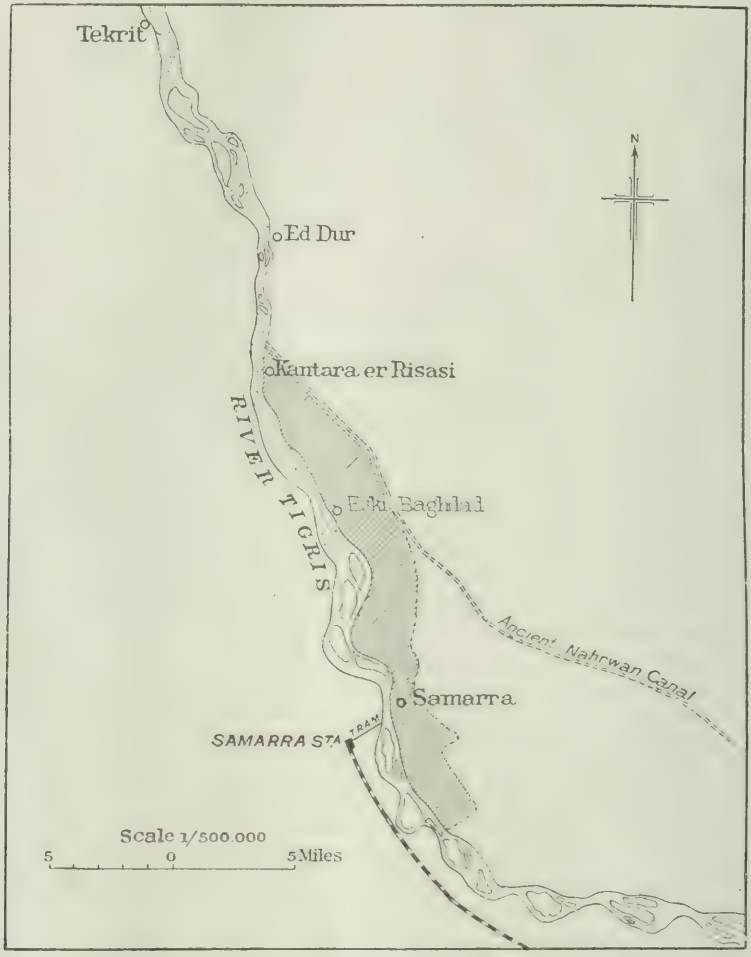
Great credit is due to the Royal Air Force for their untiring efforts in air-photography, and to Col. Gunter who dealt with these photographs; ground in enemy territory denied to our own surveyors was rapidly mapped in this fashion, on a framework of fixed points. As soon as the military conditions permitted, the maps were revised and supplemented by ground survey and issued to the field force in complete form.

In addition to their normal survey duties, the small Tigris detachment was also responsible for (*a*) providing batteries with artillery boards, (*b*) assisting in fixing battery positions, (*c*) supplying the co-ordinates of points and targets in enemy territory, etc. The work was of a very arduous nature along the Tigris front from Shumran towards Sannaiyat, and kept the small party very busily employed all day, and frequently well into the night.

To the party was also assigned the duty of erecting landmarks to guide the troops along the maze of roads behind the fighting line. These roads at night looked all alike, for no natural features enabled one to pick out the right route. The troops were thus liable to get lost, so that these landmarks, when picked up by night, were most useful. The marks consisted of poles up to 25 feet in height, stayed by wire, and surmounted by gunny bags stuffed with grass and scrub, and arranged in different patterns to distinguish one from another. Below these were sign-posts, and the combination enabled one to find one's way to one's destination, but the posts were frequently stolen for firewood.

Another job which fell to the survey party was the running of spirit-levelled heights along the firing line, in order to determine the height an embankment should be built to keep the water from flooding the trenches, the country, and the lines of communication in rear, should the Turks cut the Tigris embankments in flood-time. As an ordinary levelling stave could not be used, two 2-foot and 5-foot staves were made and a theodolite used as a level, on its box or a flat board. The work was carried along closely in rear of the trenches, work in the trenches themselves being impossible. The observer and his men had to crawl along in the mud on their stomachs, to avoid being targets to

snipers, who were always on the look-out for anybody who put his head above the parapet. One stave was pierced by a bullet, and the top of the observer's head was once so closely shaved by another bullet as to give him a headache. The weather was wet and damp, and added to the discomfort of the work.




Sketch-map to show ruins on the Tigris around Samarra, as seen from the air.

The theodolite of the party became very well known to the Turks, who sometimes shelled it, and when we were observing close to or behind the firing line, the instrument was placed near some bank or ditch whenever possible, so as to enable the observer to take cover whenever a shell was heard approaching, a most disconcerting experience when one was reading angles. The want of a periscopic theodolite such as was used on the Western front was badly felt.

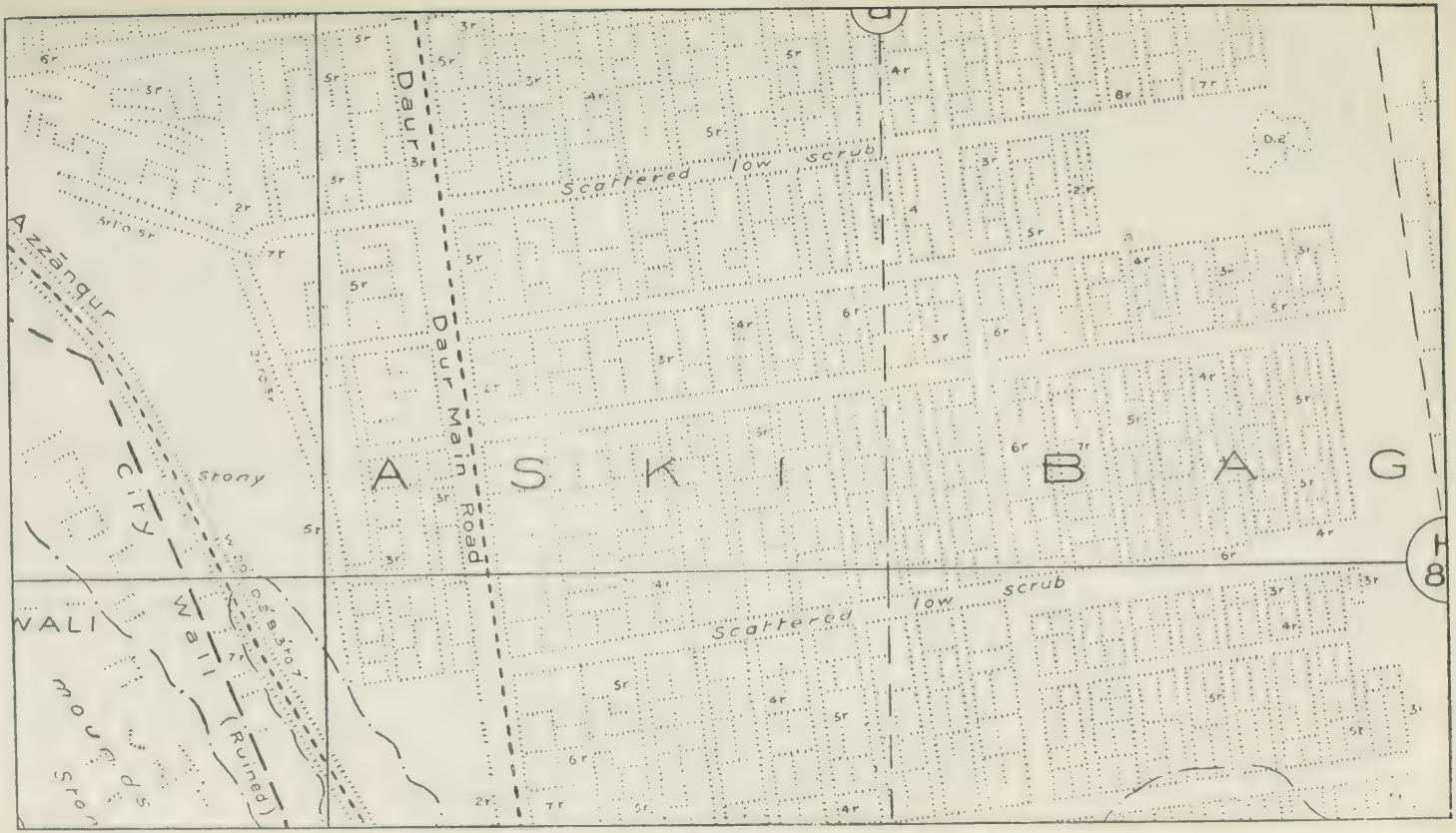



Fig. 1.—Part of the Northern Quarter of the ruined city of Eski Baghdad.

The work of providing artillery boards and "spotting" was chiefly done for the counter-batteries. The artillery boards furnished were of two kinds :—(1) "Skeleton" boards with the observing ladders, position of centre of battery, objects in enemy territory, and reference marks accurately plotted on a "grid" to correspond with that drawn in on the 3-inch map covering the same ground. Other points and detail were added as required. The mutual bearing to the nearest minute between the ladders and the centre of the battery were given. The gunners did the rest. (2) In addition to the above the 3-inch map was cut up into small squares and adjusted on the board, so as to disperse any error in scale or bearing. Drawing paper mounted on white cardboard was used for the boards, as thin zinc plates were not available. Boards were renewed when required, a duty which involved a good deal of night work to ensure the boards being issued before dawn the next day.

The positions of enemy batteries were sometimes fixed as follows :— a theodolite was set up by an assistant at the foot of an observing ladder, or in an elevated O.P., while the observer ascended and observed the flash. If at the top of a ladder he descended, observing, as he did so, what detail he could see from the ground coincided with the direction of the flash, and then took a set of observations to it. The party then motored or walked over to the second O.P. or ladder, and repeated the operation for two or more flashes, a return to the first point being made for verification of observations. The results were rapidly worked out on the spot. It is only fair to say that the system sometimes failed, as the flash did not always proceed from the same gun. It was impossible for the small party to do more, owing to lack of *personnel*, and it was not equipped with sound-ranging and flash-spotting instruments. But its members had the satisfaction of knowing that its efforts were sometimes successful, and contributed to the heavier enemy batteries being neutralised.

The original small Tigris front party followed the fortunes of the troops and entered Baghdad the day it was captured. It accompanied the columns operating beyond and on the Marl Plain near Deli Abbas. It then transferred its activities elsewhere, and was present at the battle of the Adhaim crossing ; it was also present at the battle of Istabulat which resulted in the fall of Samarra, and marched with the column it was attached to up the Adhaim River and saw all the fighting there.

In the summer months of 1917, it formed the nucleus of the party sent to Samarra to work there, and was present at all the fighting that took place beyond Shahroban in the Jebel Hamrin in the winter that followed and in the spring of 1918.

To the credit of the Nasiriya detachments falls the work done during the fighting on the Euphrates, terminating in the successful "coups" at Ramadiyeh and Hit in December 1917 and March 1918 respectively. Captain Perry was subsequently sent to Kermanshah, attached to the Russians there, and carried out a good deal of $\frac{1}{2}$-inch survey in that area. He had many obstacles put in his path, but successfully surmounted them.

On the fall of Baghdad, an accurate large-scale map of the city was

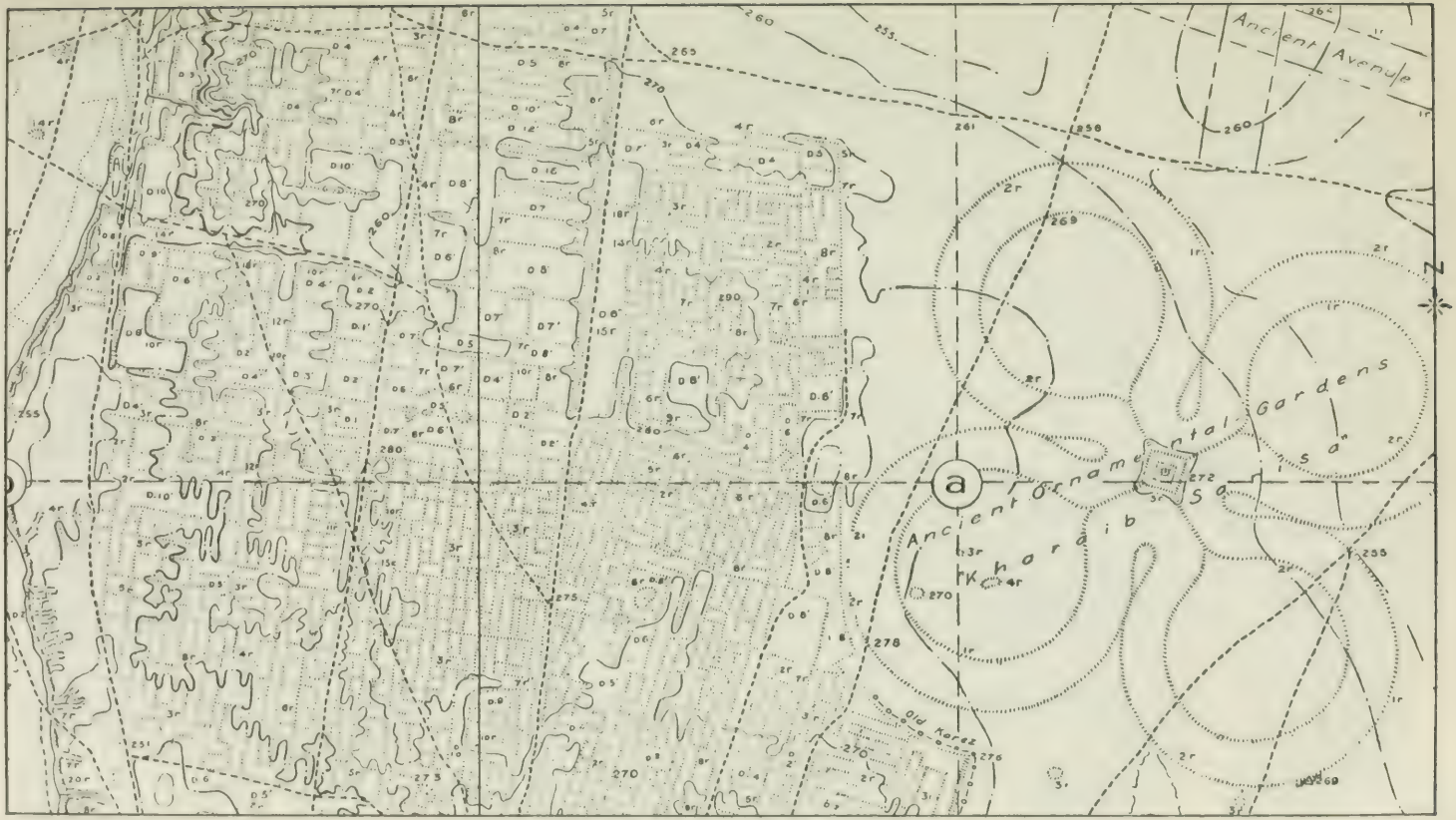



FIG. 2.—Central part of city with Public Gardens.

badly needed, and the Tigris detachment was detailed for this. But as its services were urgently required elsewhere it was decided to try an air-photographic survey, and this was taken up by the map compilation

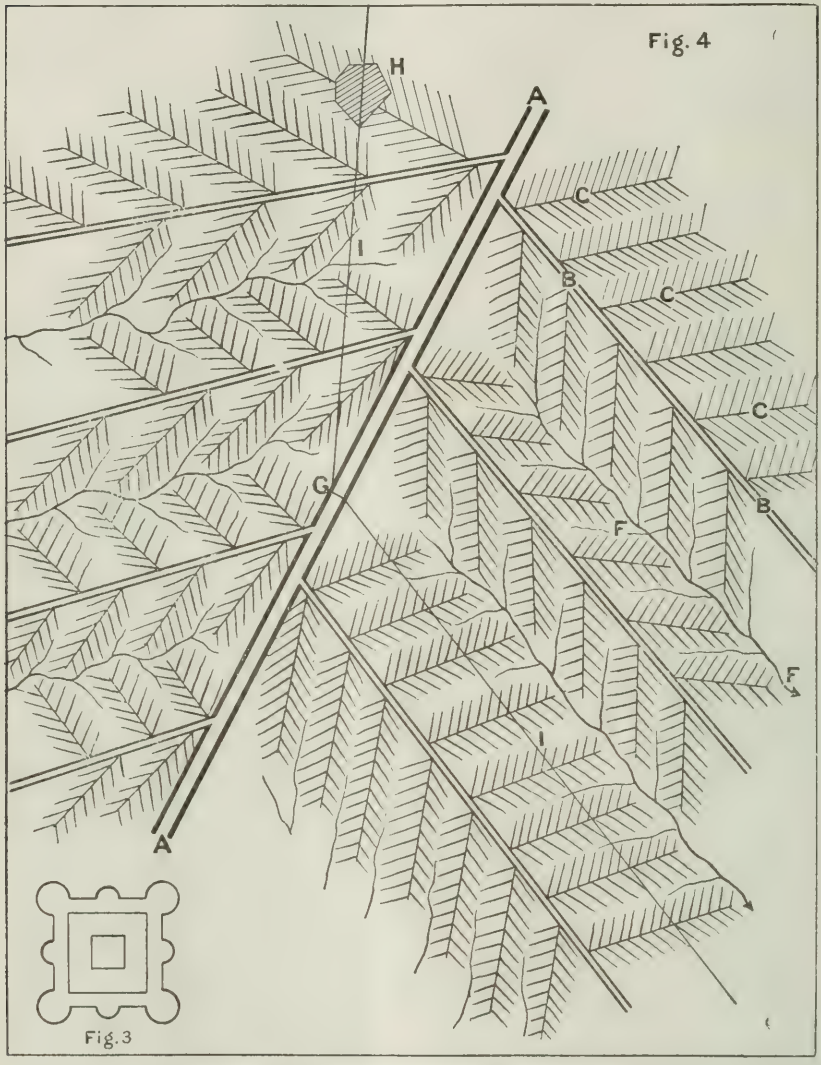



Fig. 3.—Plan of detached Forts of ancient City.
Fig. 4.—Plan of ancient Irrigation System.

department. A number of points had already been fixed by triangulation by the Tigris party, and more were fixed by plane table intersection, and a map produced from the photos on the 12-inch scale proved quite successful. The map was completed in about a fortnight

by the map compilation department. To have carried the same operation out by ground survey would have taken several weeks, and have absorbed quite a number of surveyors badly needed elsewhere.

When a large-scale survey of the neighbourhood of Samarra was called for by the military authorities, it was decided to call in the aid of air-photography, and complete the rest of the detail and contouring by supplementary survey. The scale chosen was the 6-inch, and the total area surveyed was 120 square miles.

The air photographs were adjusted to fixed points, the congregated sheet being reduced to the 6-inch scale, and blue prints made and issued to the surveyors, who traced whatever detail was required on the boards and carried out the contouring and supplementary detail survey on the ground. The photos, however, plainly revealed the profile of a very large ancient city. Traces of walls, foundations, rooms, public gardens, etc., which were not visible to any one walking over the ground, showed up quite plainly in the photographs, and revealed the fact that surveys of areas for archæological research can in future be greatly assisted by air-photography.

The illustrations given[1] afford a good idea of portions of this city. The most remarkable feature is the fine public ornamental garden, in the centre of which must have stood once a very fine pavilion (Fig. 2). The northern portion of the city is in plan very like a modern American city (Fig. 1). The epoch at which the city was built is still in doubt, but it appears to have been built before the birth of Christ, and may possibly have been passed by Xenophon in his retreat.

Figs. 3 and 4 are objects seen while the writer was in the air, the former being a sample of remains of ancient forts, the latter an ancient scientific irrigation system with a village site and a through route. Remains of bricks were found afterwards at G, showing that a bridge had once spanned the main canal. The writer was able to go over the ground in an armoured car, and the sketch was drawn from memory and shows how the water was distributed to the fields. All surplus water appears to have been returned along the depressions to the canals again, so that none was wasted.

Fig. 5 is a large-scale survey of one of the large ancient canal regulator systems east of Samarra.

The wonderful system of canals that once made Mesopotamia the granary of the world should prove of great interest to archæologists. For miles traces of these grand works stretch into the desert, with their branches radiating in all directions. Remains of ancient cities and connecting roads also abound everywhere.

The writer had hoped ere he left Mesopotamia to get permission to survey all these grand evidences of a past civilisation, both from the air and on the ground; but, while carrying out an air reconnaissance over the enemy lines, his machine was shot down and he was captured by the Turks, and thus lost all chance of doing so. It will fall to others to unravel the wonderful system of irrigation and other evidences of this country's grand past.

[1] By kind permission of the Royal Geographical Society, who have also lent the blocks.

A rapid means of topographical survey from an aeroplane was evolved by the writer to take the place of air-photography when time or circumstances did not permit of the latter process. Special fittings were designed and used for the purpose. As this required the services of a trained surveyor, and nobody else was available at the time, he took up the work in addition to his other duties. The system was used when a map was required of unmapped country, over which

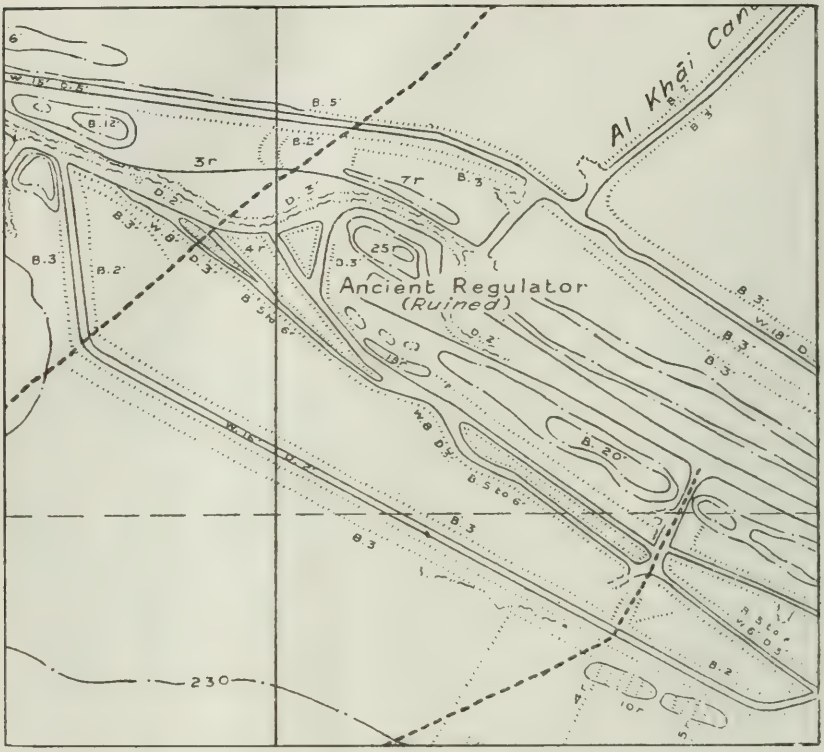



Fig. 5.—Air survey of ancient canal regulator system.

operations would shortly take place. The work was taken to the map compilation department, and the map compiled there and issued to the troops before they reached the ground. As much as 400 square miles could be done in two hours provided there was not too much detail to put in. Five very interesting and exciting trips were made by the writer over enemy territory, the aeroplane he was in being shot down on the sixth venture.

By this method inaccessible and unsurveyed areas in arid countries, where it is not advisable to go to the expense of air-photography, can be surveyed. Further experiments have just been carried out in England by the writer.

## THE MASTERY OF THE FAR EAST.[1]

It is not so very long ago that it might have been said with a tolerable approach to accuracy that the mastery of the Far East lay with Great Britain—that Great Britain was an easy first, and the rest of the European powers, save perhaps Russia on the Manchurian frontier of China, nowhere. For the first three quarters of last century this was true; British ministers ruled the roost among the embassies at Peking, and our fleet was supreme in the China seas. But, since those halcyon days, other factors and other influences have come into play; Japan has risen to the position of a first-class power, and, while we were kept busy with the great war, her influence has become dominant in Far Eastern waters. Russia, though now temporarily eclipsed, has built her railways and spread her borders to the East; while America, with her huge seaboard on the Pacific, and her great and growing navy, ranks as a bigger factor than ever before, and one which will have to be reckoned with more and more. Japanese merchant shipping has increased by leaps and bounds, Japanese traders have spread their numbers over the northern and central provinces of China, and British merchants have been obliged to look on with what equanimity they can command while much of their trade in China has been slipping from them into Japanese hands. The centre of power in the Far East has been changing, and Japan is in the best position to take advantage of the change.

Mr. Judson Brown[1] is an American, and his book is written largely from an American point of view; although the author, who has already published several important books on the new developments in China, frankly appreciates the standpoints of other nationals. He is a whole-hearted admirer of Japan, and does not hesitate to uphold the Japanese attitude when it comes into conflict, as it not infrequently does, with the views of his own countrymen, particularly his countrymen of the Pacific Coast, where the treatment accorded to immigrants from Japan has been such a frequent source of irritation between the two nations. In his preface Mr. Brown says that the general idea of his book is that "the Korean Peninsula is the strategic point in the mastery of the Far East." In pursuance of this idea, Parts I. and II. are devoted to Korea. The struggle between China and Japan in 1894, which resulted in the cession of the Liao Tung peninsula to Japan and the establishment of a Japanese protectorate over the Hermit Kingdom, taught the Chinese to change their attitude towards the Japanese, whom they had formerly affected to despise as a nation of dwarfs—*Wo-Jén*. It is a matter of history how Russia persuaded France and Germany to combine with her in ousting Japan from the Liao Tung peninsula, under the guise of solicitude for the integrity of China; and how, four years later (in 1898) Russia demanded, and obtained, from China a "lease" of the peninsula, erected great fortifications in Port Arthur, and built, at a

[1] *The Mastery of the Far East.* By Arthur Judson Brown. London: G. Bell and Sons, 1919. Price 25s.

fabulous cost, the commercial city of Dalny, with its fine harbour, 30 miles north-east of Port Arthur.

Russia had long cast envying eyes on Korea, for the sake of its ice-free ports and for ease in communication between her naval bases of Port Arthur and Vladivostok. Mr. Brown states the geographical position clearly when he says that "Vladivostok, while a place of great natural strength, and with a fine harbour in summer, is closed by ice six months in the year. Moreover, it is not upon the open Pacific but upon the Japan Sea, from which there are only three outlets: La Perouse (or Soya) Strait, about 500 miles north-east; Tsugaru Strait, 424 miles east; and Korea Strait, nearly 600 miles south. The first is a far-northern wintry passage between Saghalien and the Japanese Yezo; the second is a narrow channel between the two largest islands of Japan, Hondo and Yezo; and the latter, although 120 miles wide, is bordered on one side by Japan, and is cut in two by the Japanese island of Tsushima. In other words, the Japan Sea is literally *Japan's* sea, and it would be difficult for a fleet of any other nation to get in or out of it without her consent, as a Russian admiral afterwards learned to his sorrow." Reference to the map will show what would have been the strategic value of Korea to Russia; but, as Mr. Brown says, the later annexation of Korea by Japan "locked a door which already was shut." He relates at length the story of the Russian encroachments by means of concessions in Manchuria and Korea, which went on steadily and inexorably, and which were viewed with alarm by the Japanese. Their overcrowded country felt the need of room to expand, and everything pointed to Korea, which, by 1904, contained a population of 40,000 Japanese emigrants. This secular root cause of war led to the inevitable result, and, on February 6, 1904, Japan, which had steadily been strengthening both her fleet and her army, felt strong enough to sever diplomatic relations with Russia. The course of the Russo-Japanese war is admirably summarised by Mr. Brown, but it is so much a matter of recent history that there is no need to dwell upon it here. The military and naval power of Japan are of course leading factors in any estimate which is formed of her position, present and future, towards the mastery of the Far East. She has adopted universal military service, and every man between the ages of seventeen and forty is potentially a soldier, or a sailor. As to the discipline and fighting capacity of the Japanese army, Mr. Brown quotes the written testimony of General Kuropatkin, who commanded the Russian armies in Manchuria in the campaign of 1904. He writes: "Our men fought heroically in compact masses or in fairly close formation, but few of our soldiers were capable of fighting intelligently as individuals. In this respect the Japanese were much superior to us. Their non-commissioned officers were far better developed intellectually than ours, and among such officers, as well as among many of the common soldiers whom we took as prisoners, we found diaries which showed not only good education, but knowledge of what was happening and intelligent comprehension of the military problem to be solved." That Japan also possesses a powerful navy is a matter of common knowledge, and Mr.

Brown (page 406) confirms the view which is not infrequently expressed in other quarters, viz. that, in the event of war with the United States, her first act would be to occupy the Philippines, just as she began the war with Russia by the occupation of Korea. "Nor would the occupation of the Hawaiian Islands be a very difficult task, since 44 per cent. of the population of the islands is now Japanese, including a large proportion of men and many veterans of the Russia-Japan war." But, he adds, "we are confident that Japan has no such intentions, and that there will be no war if Americans keep their senses."

As has been said, Mr. Brown is whole-hearted in his advocacy of the case for Japan, but he states it with an evident attempt at impartiality, and especially so in dealing with the policy which led up to the annexation of Korea. Events have travelled far since Japan scored her triumph in Korea, and Mr. Brown's conclusion is that although "all the consequences of the world-war of 1914-18 cannot now be forecast, one that is already apparent is the establishment of Japanese hegemony in the Far East." "They are 'leading the Orient—but whither?' Their best men are striving, with a solemn sense of responsibility, to have their country lead with clean hands and a pure heart towards high levels of national character and influence."

Mr. Brown has the gift of clear statement, and he adduces many cogent reasons and illustrations bearing upon his conclusion which it is not easy to resist or refute. We have not touched upon the final section of his book, which deals with the effect of Christian missions on the problems of the Far East. We gather that he is a keen evangelist and preacher himself, and that he is convinced of the far-reaching influence of missions in humanising and transforming the people of Korea and of Japan. Roman Catholic and Protestant missions in Japan also have an important place in his book. He cites some curious instances of the imitation of Christian methods; for example, the Young Men's Buddhist Associations, which attract growing numbers, and of Buddhist Sunday-schools using hymns in which words and airs are taken bodily from Christian hymn-books. He mentions having visited a Buddhist Sunday-school to find the children singing lustily—

"Buddha loves me, this I know,"

to an organ accompaniment from a Christian hymnal.

It is interesting to turn to Mr. Sih-Gung Cheng, who in his very able and illuminating study[1] approaches the subject of the future mastery of the Far East at a totally different angle from that of Mr. Judson Brown. A Chinese himself and one of the delegates to the Peace Conference in Paris, Mr. Cheng, like many other of his compatriots, professes not to share in Mr. Brown's view of the disinterested nature of Japanese aims. He says that "many Chinese of this generation, imbued with Western ideas of patriotism and nationality, . . . believe in the disinterestedness of the United States and in the sense of

[1] *Modern China: a Political Study.* By Sih-Gung Cheng, M.A., B.Sc. (Econ.). Oxford: at the Clarendon Press, 1919. Price 6s. 6d.

justice and fairplay maintained by Great Britain. To France they are indebted for the inspiration resulting in the destruction of inefficient despotism; and they look to her for guidance in solving their constitutional difficulties. Of Japan they are generally distrustful and suspicious. They are openly hostile to her when she attempts to bring pressure to bear on the Chinese government." Part of this distrust and suspicion is no doubt due to the attitude of Japan in the matter of Kiaochow and the refusal by Japan to restore Tsingtau and its adjacent territory in the Shantung province to China. But, in addition to this particular bone of contention, there are the extensive claims made by Japan to predominance in the northern provinces and also in the valley of the Yangtsze; while the reports to the effect that certain corrupt Chinese officials of the old school are bribed and placed in power by Japan do not tend to allay the national feeling of uneasiness. Mr. Cheng makes no question of the ascendancy of Japan in the Far East. He writes that "she has asserted her power and prestige to such an extent that she now takes precedence over all other States in the Council of the foreign Diplomatic Corps in Peking. It is no exaggeration to say that, without her approval and consent, Europe and America will find it difficult to launch any new policy in connection with their transactions with the Chinese government." In proof of this, he gives a list of the privileges acquired by Japan in China during the past four years, which are too many to quote here, but they are certainly very formidable.

Mr. Cheng's book is, as he says in his preface, "an attempt to deal with some of the important problems which confront the Chinese statesman and diplomat," and with the share which China is bound to take in the economic developments of the world. His inside knowledge of things Chinese, combined with a liberal training in Economics in this country, enables him to treat his subject from an international standpoint. He urges that China, left to herself, will be too feeble to overcome the pressure exercised by Japan, or to retain her own independence, and he draws a lurid picture of the possible future militarisation of China by Japan, leading at last to the destruction of Europe by invasion from Asia—a yellow peril indeed! He pleads that, on moral grounds also, Europe and America cannot afford to view Japanese aggression in China with indifference, having pledged themselves to the principle of self-determination for all peoples. In the concluding pages of his book Mr. Cheng lays down certain broad principles which he considers Great Britain, France, and America should observe in their dealings with China, which might enable them to maintain their own position in the latter country and "deprive Japan of the means of annexing it." These may be summarised by stating that the idea of a balance of power has become obsolete, and that if all the signatories to the treaty of peace are to get similar privileges and concessions in China, one power alone, by virtue of its opportunities and propinquity, will dominate all the others. Therefore, that Great Britain, France, and America should "openly confess the ineffectiveness of the principle" of maintaining the balance of power, and that they should rather com-

bine to restore to China the territory held by them in lease. Having done this, "they should help China to demand from Japan the restoration of her leased territory, the Liaotung Peninsula, and the abolition of Japan's spheres of interest." In short, that the three Great Powers should take active steps to maintain the integrity of China against Japanese domination. This, of course, is an echo of the protests of the Chinese delegates at the Paris Conference, and it would be presumptuous to offer an opinion here on the practicability of the scheme which Mr. Cheng so ably advocates. In the meanwhile the news from China of the continuance of the internecine struggle which has been going on now for some years between the oligarchy ruling at Peking (which still enjoys the benefit of recognition by the Western Powers) and the military party of the south, together with the conditions of want and suffering amongst the masses of China induced by these disorders, leave little room for hope that the country will have sufficient internal cohesion to enable it to maintain its own integrity in the near future. But "the whirligig of time brings in his revenges," events move fast, and it is rash to prophesy what the future may bring to pass in the settlement of the mastery of the Far East. J. D. M.

---

## RECENT DEVELOPMENTS IN SPITSBERGEN.[1]

By R. N. Rudmose Brown, D.Sc.

(*With Map.*[2])

As recorded in this *Magazine* in December 1919 (p. 388), the Supreme Council at Paris decided to place the archipelago of Spitsbergen, including Bear Island, under Norwegian sovereignty. This decision puts an end to a problem which for over three centuries at different times has exercised the States of western Europe, and removes the last *terra nullius* of any economic importance from the map of the world. Incidentally it gives Norway her first overseas possession, and exhibits the anomaly of a State which remained neutral throughout the war gaining considerable territorial aggrandisement at the hands of the Peace Conference.

The treaty was signed in Paris on February 16, 1920, by the British ambassador on behalf of the United Kingdom and India. At the time of writing it awaits signature by the representatives of the self-governing Dominions, and hence the delay in its publication. The other contracting parties are Denmark, France, Italy, Norway, Sweden, Holland, the United States, and Japan.

Representatives of British mining companies holding estates in

---

[1] Incorporating the substance of a lecture delivered to the Society in Edinburgh on February 12.

[2] We are indebted to the Scottish Spitsbergen Syndicate for permission to reproduce this map.—Ed. *S.G.M.*

Spitsbergen had an opportunity previous to the drafting of the treaty of expressing their views on the safeguards essential to their interests and the untrammelled development of their estates. It is confidently anticipated that all these measures have been incorporated in the treaty and that the pledge, made on more than one occasion, that British interests would be safeguarded in any settlement of the Spitsbergen problem, will be fulfilled to the letter.

Land held in Spitsbergen by British subjects (and similar considerations apply to the nationals of other States) was in the nature of a private acquisition of territory in the sense that the sovereignty of Great Britain did not apply to it. International jurists may argue what validity such titles have, and it was never denied that the position was a peculiar one, beset by many difficulties, but Norwegian sovereignty cannot dispose of the freehold rights of British subjects, especially when their annexation of territory has been followed by settlement even of an intermittent nature.

The treaty puts the subjects of all the signatory powers on exactly the same footing, and allows Norway to exercise no discrimination whatever in favour of her own nationals. It is also expected that it will stipulate that any taxes or dues levied on the various mining companies will be earmarked for use solely on the administration of Spitsbergen, including the erection of beacons, foghorns, and other helps to navigation, and the necessary protection of game. It would, however, be unfair to allow taxes to be levied in furtherance of the survey of Spitsbergen which for the last ten years has been conducted chiefly at the cost of the Norwegian Government. Every serious mining company is surveying its own territories in considerable detail. On the other hand, there is probably no mining company in Spitsbergen that would not readily consent to contribute a reasonable sum for adequate policing and security of property. An office for the registration of titles to land would also be desirable, since it is not improbable that new estates will be claimed from time to time as the mineral wealth of the country is further prospected. Subjects of all the signatory States are to have equal rights to prospect and claim new mining estates. Russians are put on the same footing as the nationals of the contracting parties.

Somewhat elaborate procedure is to be followed in establishing titles to existing estates. For this purpose a Danish commissioner, presumably in the capacity of a neutral (there being no Danish estates), is to examine and decide on claims, while disputed cases are to be submitted to arbitration at a court composed of one Danish commissioner and one arbitrator appointed by each state to which rival claimants belong. This may eventually prove satisfactory, but it will not result in a settlement for many months to come. It is understood that the Danish Commission will sit at Copenhagen. In view of Europe's gift to Norway, it is not unreasonable to suggest that Norway should bear the cost of this arbitration, which, after all, is forced on the mining companies in spite of the indisputable nature of most of their titles.

It is scarcely probable, considering the delays usually attendant on the signing and ratification of treaties, and in view of the necessity of framing regulations for the administration of the country, that Norwegian sovereignty will be fully established in Spitsbergen this summer. While it is not a little surprising that the British Government has been so ready to yield to another State the valuable territories which British subjects have been at pains to acquire and develop, there is every reason to hope that Norwegian sovereignty will bring prosperity to Spitsbergen, and that Norway will do her utmost to administer the country with due regard to the interests of its cosmopolitan mining population.

It has frequently been pointed out that Spitsbergen occupies a position not without strategic value. The many splendid harbours, and vast coal and possible oil resources of the country, are only a few days' steaming from the North Atlantic trade routes and the shores of western Europe. In the hands of a hostile or aggressive power Spitsbergen might prove a source of real danger to the peace and security of Europe. This cannot be denied, and recent German designs on Spitsbergen showed the truth of it. For this reason it is fortunate that the country is now in the hands of a friendly State whose interests are those of peace.

The Scottish Expedition of 1919 was despatched by the Scottish Spitsbergen Syndicate, Ltd., to prospect and develop its estates. It represented the practical application of a long series of discoveries made by scientific expeditions organised and directed by Dr. W. S. Bruce. The expedition sailed in the *Petunia*, formerly a mine sweeper and convoy sloop built for the navy during the war. The leader was Dr. W. S. Bruce, who made his tenth expedition to Spitsbergen. He was assisted by Dr. Rudmose Brown, who took over command on Dr. Bruce's recall to Scotland on urgent business. The master of the *Petunia* was Captain F. B. Napier, well known for his work in Spitsbergen waters in 1909 in the *Conqueror*. An advance party under Mr. J. Mathieson reached Spitsbergen ahead of the main expedition in the motor sloop *Phantom*. Among the large scientific staff which accompanied the expedition were the following: Messrs. A. F. Campbell and J. Scott, mining engineers; Messrs. G. W. Tyrrell, J. M. Wordie, J. K. Charlesworth, G. Ross, C. M. Leitch, D. A. Allan, C. Raeburn and J. Stevens, geologists; and Mr. G. M. Cowan, surveyor. Mr. J. V. Burn-Murdoch made his fourth and Mr. J. Kenneth his second expedition to Spitsbergen. Mr. C. M. Scott sailed as organising secretary, and Mr. Robley Browne, R.N., was medical officer.

The year was an open one on the west coast, where no ice of any importance was seen during the months of June, July, August, and early September. The east coast, as was expected, was less open, but one of the expedition's vessels made a voyage to the head of Storfjord during the first half of August. Mr. J. M. Wordie, who has had very intimate experience of polar ice during his drift with Sir E. Shackleton through the Weddell Sea in 1915-16, points out that at least in 1919 the ice encountered was all old drift ice, composed of small floes much

worn by wave action, and that it is most abundant and most tightly packed across the mouth of Storfjord. This confirms previous experience. When once a vessel penetrates this belt it stands a fair chance of finding navigable water within the fjord. The summer ice in Storfjord is brought from the east round Edge Island by north-easterly winds. A continuance of these winds takes the ice round South Cape to the west coast, and if a long period of easterly winds is followed by strong westerly winds the ice may, as in 1915, invest the west coast with some persistence. But this is most unusual. As regards the navigation of Storfjord August is perhaps the best month, but September is often open, although so late in the season there is some danger of being frozen in. It may be noted that the absence or presence of ice on the west coast is not a safe criterion by which to judge the accessibility of Storfjord.

The considerable economic discoveries of the expedition included a new field of carboniferous coal, an extensive bed of magnetic iron ore, deposits of other iron ores and copper ores, great thicknesses of bituminous shales, and indications of natural gas. Some of these discoveries are referred to elsewhere,[1] but it is only when this summer's geological work is completed that materials will be available for a full geological report on several of the most interesting regions in Spitsbergen, including Prince Charles Foreland and part of the heavily faulted plateau region at the head of Icefjord.

Reference may be made to a recent paper[2] describing the economic activity in the Spitsbergen archipelago. Most of the companies mentioned in that paper were at work last summer, and several have made considerable progress. Nearly all companies extended their estates. The total area of estates in square miles, according to the nationality of their owners, is now as follows:—British 6500, Norwegian 900, Swedish 400, Russian 60. In view of the inadequacy of the maps of many parts of Spitsbergen, these figures must be taken as approximate. There are now at least four wireless stations, but the one in Green Harbour alone communicates with the mainland of Europe. Three of these wireless stations are Norwegian post offices, with irregular but not infrequent despatches and arrivals of mails by cargo boats and store ships.

Last summer there were five mining settlements in Spitsbergen actively exporting coal. The total amount exported was over 90,000 tons: this year's export will greatly exceed that figure. At least two other settlements are rapidly nearing the export stage. The following statistics, compiled from various sources, are believed to be trustworthy and may be of interest.

---

1 "The Coalfields of Spitsbergen," *Nature*, Oct. 9, 1919.

2 "The Present State of Spitsbergen," R. N. Rudmose Brown, *S.G.M.* June 1919. When all titles to land are fully established and overlapping claims adjusted it is hoped to publish a revised edition of the map of mining estates which appears on p. 205 of that article.

TOTAL EXPORT OF COAL FROM ALL MINES (IN TONS).

| 1909 | 1910 | 1911 | 1912 | 1913 | 1914 |
|---|---|---|---|---|---|
| 15,000 | 20,000 | 25,000 | 40,000 | 35,000 | 40,000 |
| 1915 | 1916 | 1917 | 1918 | 1919 | |
| 28,000 | 20,000 | 40,000 | 60,000 | 90,000 | |

TOTAL SUMMER POPULATION OF SPITSBERGEN (ALL NATIONALITIES).

| 1914 | 1915 | 1916 | 1917 | 1918 | 1919 |
|---|---|---|---|---|---|
| 320 | 200 | 285 | 520 | 850 | 1000 |

Statistics of shipping published in Norway include not only Norwegian vessels on time charter between Spitsbergen and Norway but vessels of all nationalities visiting Spitsbergen for any purpose, since practically all call at Tromsö. Such figures convey little information of value and need not be quoted.

The map accompanying this article is the work of Mr. J. Mathieson, assisted by Messrs. G. M. Cowan and A. F. Campbell. It corrects and amplifies previous Swedish maps of the district which were chiefly the work of Baron G. de Geer.[1] Mr. Mathieson's map amends the British Admiralty chart, No. 2751, and makes drastic changes in the chart of Bjona Haven (No. 3020), which was based on a poor survey made in 1891 and 1892 by Lieut. Ritter von Barry, and has long been recognised as valueless by Spitsbergen travellers. The land between Klaas Billen Bay, Sassen Bay, and Temple Bay is known to the Swedes as Bünsow Land, and was named Garwood Land by Sir Martin Conway. Care has been taken to preserve all old names and names published in previous surveys. Confusion sometimes arises with regard to Gips Hook. This name belongs to the south-eastern point of Klaas Billen Bay, opposite the Anser (Goose) Islands, the name of which is sometimes transferred to it. Gips Hook is on some maps wrongly attached to the western cape of Gips Bay.

Mr. Mathieson contributes the following notes:—The map covers a district of 28 by 23 miles, and contains an area of about 680 square miles. It has been constructed from a trigonometrical survey, with a base line of 6040 feet in Klaas Billen Bay. The land rises gradually from 2000 feet at the south end to the highest point of the De Geer Range (3780 ft.) at the north. The Von Post and the Nordenskjöld Glaciers are among the largest in Spitsbergen, each having a face of about two miles to the sea: the latter rises rapidly to about 1800 ft. at Mount Ferrier. Gips valley extends inland for about 15 miles and at 10 miles from the sea its floor has an elevation of less than 100 ft. It is quite clear of ice, but all the side valleys entering it have glaciers, from which the summer streams form huge fans, some of them a mile

[1] *Ymer*, Vol. 32, 1912; Guide de l'excursion au Spitsberg, xi. Congrès Géologique International, Stockholm, 1910; and Zentral-Spitzbergen, by W. Filchner, *Petermanns Mittellungen, Ergänzungshaft*, No. 179.

wide, along Gips River. The most picturesque district is Temple Bay, with Temple Mount and Temple Range guarding the northern and the Colorado Hills the southern side. The characteristic form of the hills is flat-topped, with gentle slopes for the topmost 200 to 300 ft., then a rocky face of some 500 to 800 ft., and the remainder scree (*Icelandic* skritha = an accumulation of loose stones). These screes obscure the solid rock round the base of the hills. In all cases the ascent is difficult, and on this map the Pyramid, De Geer Range, and Mount Jean are the only summits that can be reached with comparative ease.

A series of soundings taken in Klaas Billen Bay and a large-scale survey of Bjona Haven, together with soundings taken in Storfjord, have been handed to the Hydrographic Department of the Admiralty for use on the next edition of the Spitsbergen chart.

---

## THE "MOUNTH" PASSES OVER THE GRAMPIANS.

By G. M. Fraser, Librarian, Public Library, Aberdeen.

It is very remarkable, when one thinks of the importance of the passes over the Grampians for the northern half of Scotland throughout history, that no complete study of these passes has ever been printed. References are made to them in guide books and in topographical and historical articles relating to the region, but all are, more or less, fragmentary, and most of them are very inaccurate in their historical bearing. The main-road system of this part of the country, from the earliest historic times, is at present engaging attention, and in due time the results will be made public. Meantime, this independent survey of all the old "Mounth" passes may be found useful to all interested in our road system in Scotland.

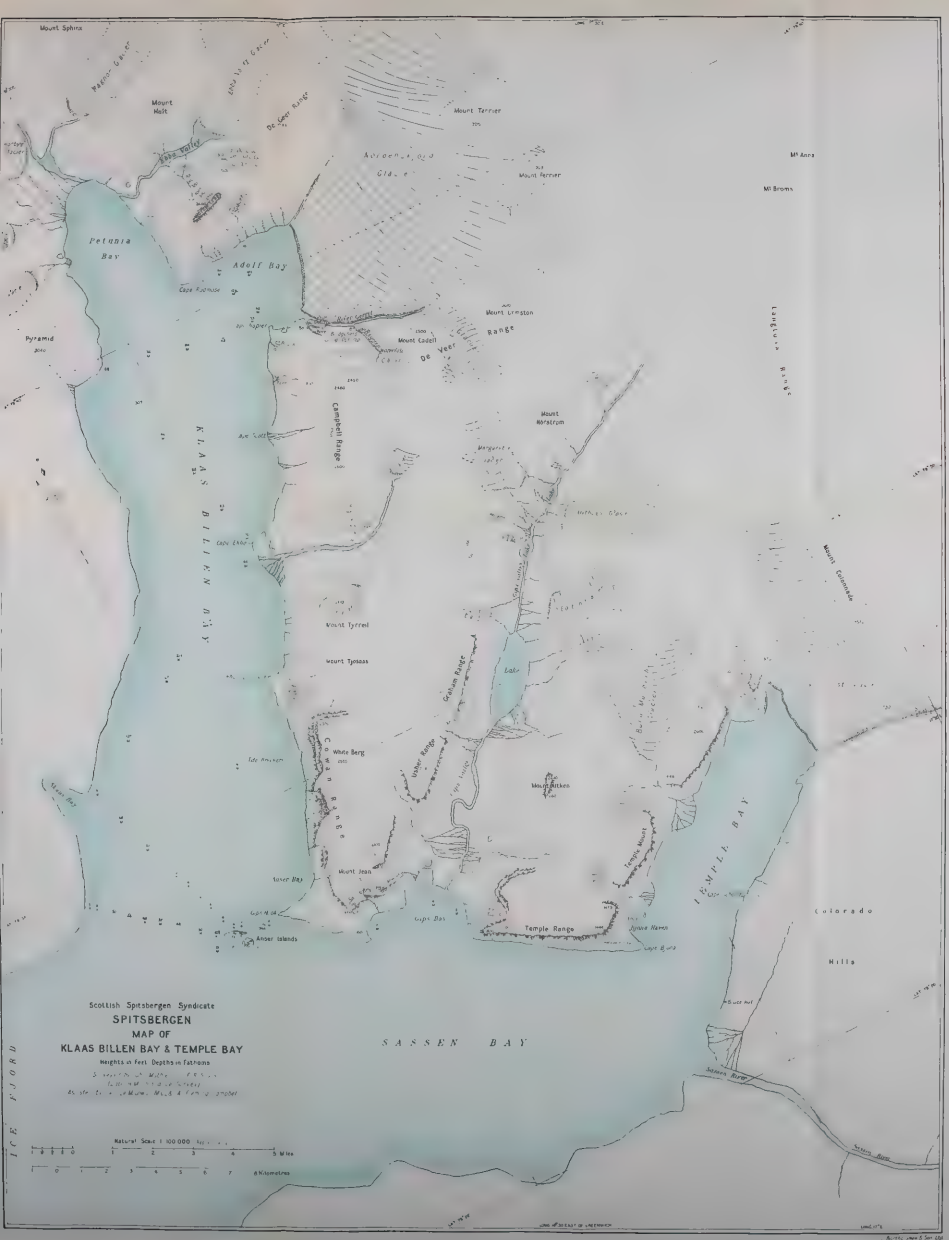
### The Meaning of the "Mounth."

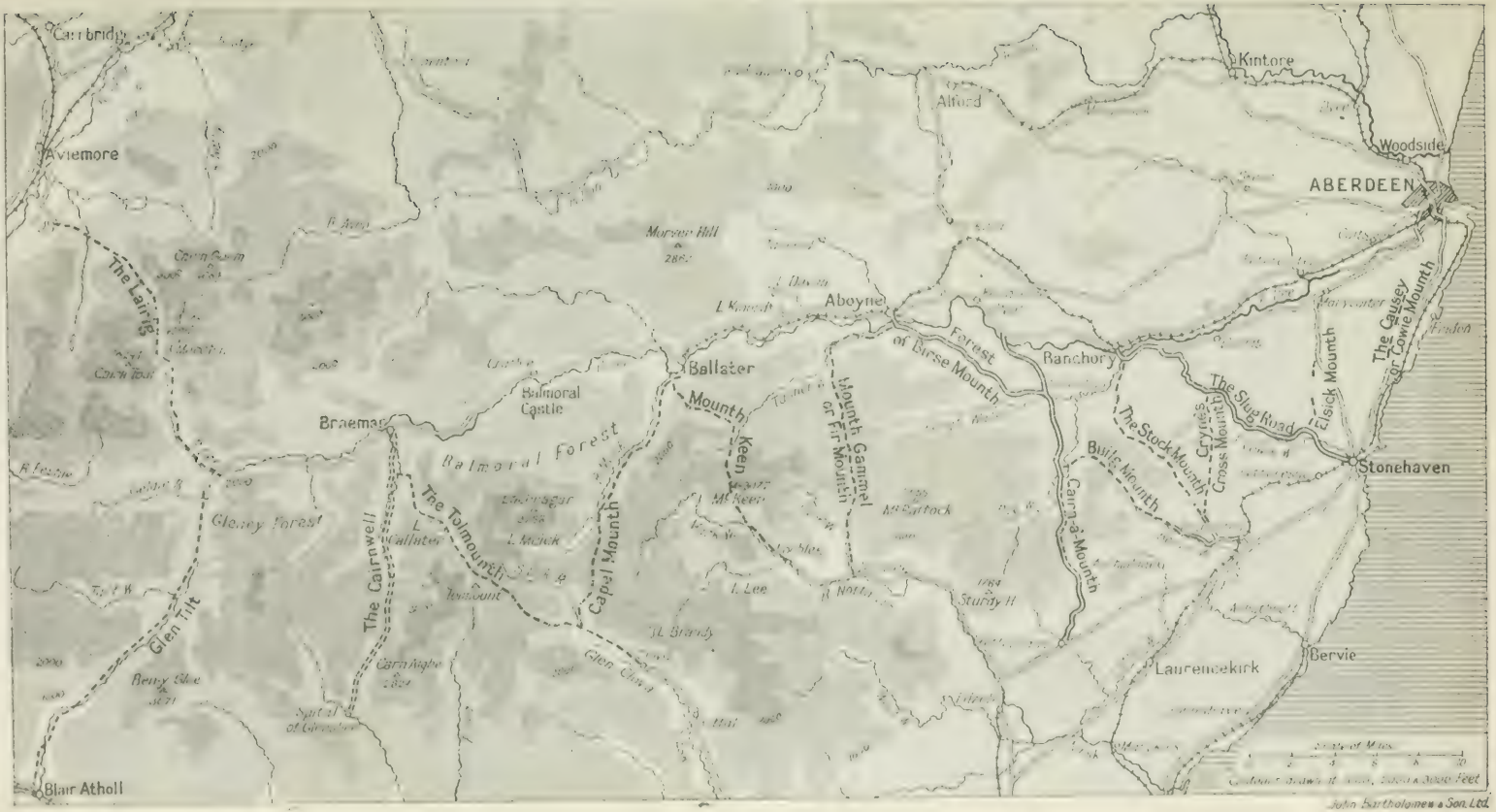
Before describing these passes, however, we must deal a little with the expression "Mounth," used to signify a pass over the Grampians.

"Mounth" is the English rendering of the Gaelic *Monadh* (pronounced mōn-a), meaning a moor or heath, and has no reference whatever to a road or pass. The Irish Gaelic (whence the Scots Gaelic) expression for a pass is *Bealach* (bealach-mor or ballagh-mor, the high-road), hence the Scots Gaelic *bealach*, and its corrupt form, *balloch*, found in certain of our place-names in this part of the country.[1] The Irish use of "Mona," properly "Moin," relates to a mountain, or a moor, or a turf bog; and so we in Scotland have *moine*, a moss or bog, and *monadh* (probably later), signifying a moor or heath, and applied also to a mountain in respect, probably, that it, too, is moorland. In any case,

[1] Ballochbegy, the Little Pass, Cabrach; Ballochbuie, the Yellow Pass, etc. Note also in Ireland Ballochboy, same as Ballochbuie, Yellow Road or Pass, Ballaghmore, the Great Road or Pass, Ballaghbehy (beith), the Road of the Birches, etc.

116a


Mount Sphinx
Mount Holt
Mount Terrier
Mount Ferrier
Mt Anna
Mt Broms
Petunia Bay
Adolf Bay
Pyramid
Mount Lyell
Mount Cadell
Mount Ormston
Mount Mörstrom
Campbell Range
KLAAS BILLEN BAY
Mount Tyrrell
Mount Tyssaas
Graton Range
White Berg
Usher Range
Mount Aitken
Mount Jean
Temple Range
TEMPLE BAY
Colorado
Hills
Anser Islands
SASSEN BAY
ICE FJORD
Scottish Spitsbergen Syndicate
SPITSBERGEN
MAP OF
KLAAS BILLEN BAY & TEMPLE BAY
Heights in Feet, Depths in Fathoms
Natural Scale 1 100 000
5 Miles
6 Kilometres




ROADS AND PASSES OVER THE EASTERN GRAMPIANS. Compare also the text and maps of Dr. Alex. Bremner's article in vol. XXXV. p. 331.

this is the chief thing to be noted, that in whatever form Moin, Moine, or Monadh is used, the expression, in its own tongue, never signifies a pass. It is only in its corrupt English form as "Mounth," used loosely, when those who used it had long ceased to have any knowledge of its proper meaning, that it came to be applied to a pass through the Grampians, and we began to get the expressions "Causey Mounth," "Fir Mounth," "Capel Mounth," and so on. Even within the period of our written history the term "Mounth" was being applied in its proper meaning to describe, not a pass, but the Grampian range itself. The very first charter Aberdeen received, from William the Lion, 1171-85, was a charter of trade to all his burgesses "dwelling to the north of the Munth,"[1] which shows us, among other things, that English, which by that time had supplanted Gaelic in the northern Scots burghs, was already doing its corrupting work with the Gaelic tongue, but that the corruption had not yet gone so far as to divert the use of the term "Mounth" from the range of hills to a pass across the range, as happened in later times.

Keeping this distinction in the use of the term "Mounth" in view, we proceed to describe the various passes over the Grampians. We shall base our description on what, although defective in many respects, has been the best summary list, so far, of these passes hitherto printed, namely, the list that accompanies the *View of the Diocese* (c. 1732), from the manuscript of Sir James Balfour of Denmilne (1600-1657), in the Advocates' Library, Edinburgh, printed as a note in Joseph Robertson's "Collections on the Shires of Aberdeen and Banff," Spalding Club, 1843, p. 77 *n.*

## 1. The Causey or Cowie Mounth.

This historic highway, which ran between Cowie and Aberdeen, was the main connecting link between Aberdeen and the South country throughout history till the making of the Stonehaven turnpike in the closing years of the eighteenth century. It is still in use from its northern end to Badentoy, near Portlethen; then one finds a piece of it still in use from near Berryhill, Portlethen, to St. Ternan's Episcopal Church, Muchalls; beyond that the line of it is still traceable to near the Bridge of Cowie, Stonehaven.[2]

## 2. Elsick Mounth.

This pass leads from Stonehaven to Drum—"sex myles of monthe"—and is the route through the parish of Fetteresso, by Netherley, to the old ford and boat on the Dee at Tilbouries. It was the line of the Roman iter from the camp at Raedykes, Fetteresso, to the camp at

---

[1] P. J. Anderson, *Charters and other Writs illustrating the History of Aberdeen*, p. 3.

[2] The history of the Causey Mounth road has been told in the writer's *The Bridge of Dee*, pp. 76 *et seq.*

Culter, and thence, by way of Skene, to the camps at Kintore, Ythan Wells, and the Spey.[1]

### 3. The Slug Road.

This well-known road could not have been much of a pass over the Mounth, but there must have been a road of a kind there from very early days. It led from Stonehaven to Durris and to the crossing of the Dee at Crathes and at Banchory Church, but in the old days it would be less useful as a pass over the Grampians than either the Elsick Mounth on the east of it, or Cryne's Cross Mounth on the west. It was not conveniently situated even for Megray Fair, the old market of Cowie.

The name "Slug" signifies a road passing between two hills—from Gaelic *slochd* and *sloc* (Irish *sloc*), a pit, a den, etc. It is allied to *slack*, used all over Britain to designate a pass between hills. Note Danish *slug*, a ravine.

Almost nothing is known of this road before the period of turnpikes. In August 1797 intimation is made of an application about to be made to Parliament for leave to bring in a bill for "making, repairing, and establishment of turnpikes on the road leading from Stonehaven through the pass in the Grampians called the Slug to or near the village of Upper Banchory, which road passes, or will pass, through the parishes of Fetteresso, Durris, and Banchory-Ternan, all in the county of Kincardine," and we are told in the Statistical Account of 1842 that in 1800, "principally through the exertions of Mr. Innes, then tacksman of the whole estate of Durris, a turnpike road was made from Stonehaven to Banchory-Ternan."[2] It is still a fine road, passing close to the Roman Camp of Raedykes, and penetrating a region of remarkable grandeur and isolation, although so near centres of population.

### 4. Cryne's Cross Mounth.

This leads from Laurencekirk and "Paldy" Kirk in the Mearns to the river crossing at Mills of Drum, and was an important and curiously-named pass.

From Laurencekirk it went by St. Palladius Church and Fair—"Paldy Fair"—Fordoun, to Glenbervie, thence almost due north over the hills to Durris. The track leaves the present Stonehaven-Auchinblae road near Braes of Glenbervie School, and ascends the Mounth between the farms of Cleugh-head on the east, and on the west Bogjorgan, the holding farmed by the ancestors of Burns. Thence, on the 800-foot level, the old track crosses the Glenbervie range to Lady's

---

[1] See the writer's "Roman Camp at Culter," reprinted from *The Scottish Geographical Magazine*, November 1915. The Camps at Raedykes and Ythan Wells have been excavated by Dr. George Macdonald and Professor Haverfield. The Camp at Culter is clearly marked, but has still to be excavated scientifically.

[2] *Aberdeen Journal*, 29th August 1797, quoted by J. Crabb Watt, in *The Mearns of Old*, p. 157; also, *Statistical Account of Scotland* (1842), xi. p. 262.

Leys on the Cowie Water—the old "Bread and Cheese" house, for food refreshment, as distinguished from the Inn, the ruins of which can be seen on the green haugh at the other side of the ford.[1]

Below Lady's Leys the Cowie is now crossed by a timber foot-bridge, and the East and West Dumer Burns by stepping stones. Thence, proceeding almost due north, the track makes a long ascent to the east shoulder of the Hill of Mossmaud. In this part the old road is now in poor condition. Half-way to the ridge there is about thirty yards of remarkably close paving on the track. It is formed of medium-sized boulder-stones, set very closely and skilfully together. At Lady's Leys the writer found a tradition that this is Roman paving, and it certainly bears a close resemblance to the paving laid bare in recent years by the excavations on the Hadrian Wall (at Chesters, for example), Northumberland.[2]

Beyond this remarkable paving the old Mounth road is still very clear, and after crossing the saddle between Mongour (Hill of the Goat) on the west, and Craigbeg (Little Crag) on the east, it descends to the Slug Road immediately south of Spyhill farm, near the ninth milestone from Stonehaven on the west flank of Cairnmonearn. From this point, in the old days, the Mounth road proceeded through Durris to the crossing of the Dee near Durris Church—a fork striking westward to the river crossing at Balbridie, whence it connected with the north road by Mill of Hirn to Monymusk, and so to Old Rayne, where it joined the main road to Huntly and the far north.[3]

Cryne's Cross Mounth was much used in history. It was by this route evidently that Edward I. of England marched with his forces on that memorable journey in 1296, when he visited Aberdeen for the first time and received the homage of the burghers. He left Montrose on Wednesday, 11th July, for the Castle of Kincardine, then a noted stronghold, when Kincardine was the capital of the Mearns. On Thursday, 12th, he was at Glenbervie, and on Friday, 13th, he was at Durris, "a manor among the mountains," where he passed the night. On the following day, Saturday, 14th July, he crossed the Dee, and entered Aberdeen.[4]

This was a well-known route also in later centuries. It was used repeatedly in the time of the Covenanting troubles by Montrose, that

---

[1] The tradition as to the name of Lady's Leys is that it was the isolated property to which the dowager lady was despatched when the young laird brought home the new mistress. It is now occupied by the Glenbervie hill-keeper, a neat cottage, with some farm land attached.

[2] The Romans crossed the Grampians from Raedykes, Fetteresso, to Normandykes, Peterculter, and marched thence to Kintore, Ythan Wells, etc., but this line of crossing is seven miles east of the Cryne's Cross Mounth. If this be Roman paving really, then the Roman forces must have sent out a flank detachment to intercept the Caledonians in the wild hill country on the west.

[3] Taylor and Skinner, 1776, plates 53 and 54, show the connections with the river crossings.

[4] *Historical Documents, Scotland*, ii. 29. See also Gough's *Itinerary of King Edward the First*, ii. 281-6. Gough has to be examined most carefully in respect of his local names, and his maps of Edward's northern journeys are demonstrably wrong, but there can be no doubt of the route on that first journey.

brilliant captain, who knew well how to take advantage of routes, as well as ground, in his campaigns. He came to be very familiar with all these passes over the Mounth. The first time that he came as an enemy in arms—a Covenanter—against Aberdeen he came, along with the Earl Marischal, from Dunnottar by way of the Cowie Mounth, June 1639, and engaged in the battle of the Bridge of Dee.[1] The next time he came, he came as a Royalist, Lieutenant-Governor of Scotland for the King, in September 1644, the blackest month that Aberdeen ever knew. This time he "miskens" (ignores) the Bridge of Dee, and, approaching evidently by way of Cryne's Cross Mounth, he crossed the Dee at Mills of Drum, 11th September, and supped with the Laird of Leys at Crathes Castle "after he had summoned him to surrender his house." Two days later he destroyed the army that guarded Aberdeen, and gave up the town to pillage and slaughter for days.[2] On one other occasion, at least, Montrose seems to have used the Cryne's Cross route, on 17th October, that same year. He marched from the Mearns with his army, safe and sound, says John Spalding, and again crossed at Mills of Drum, the Aberdonian forces "having lain watching the Bridge of Dee foolishly, with about 14 troups."

A few words must be said about the name of this old road. The name, Cryne's Cross, is most probably a personal name. There was a noted family in Aberdeen in the middle centuries named Cryne, and Cryne's Croft, Foty, was a well-known property. Members of the Cryne family witnessed charters and made donations to St. Nicholas' Church.[3] Boundary crosses were in use to distinguish particular lands in those days, and it is not unlikely that a boundary stone of the Cryne family gave the name to this route over the Grampians.

## 5. The Stock Mounth.

This road, leading from Glenbervie to Strachan, "conteins sex myles of mounthe."

It is known in Durris as the "Foggy Road" ("Green roads" in England, as being overgrown with turf), and is so set down in the larger-scale Ordnance Survey maps. From Paldy Fair and Glenbervie the Stock Mounth led by the Well of Monluth, over the head waters of the Sheeoch Burn by a ford, crossed the ridge at 1000 feet between the hills of Shillofad and North Dennetys, and, descending quickly as it passed the north-east shoulder of Kerloch, it struck the existing Strachan road at 400-feet level at Pitreadie, about a mile east of the Kirktown of Strachan. The Stock Mounth would be useful as an

[1] See John Spalding, the various editions, under date; also the writer's *Bridge of Dee*, pp. 47 *et seq.*

[2] See Spalding, the authentic historian of the episode, for the events of the week. Spalding was a keen Royalist, so that his evidence on this matter may be taken as within the facts.

[3] *Records of Marischal College*, i. 15, 373. *Registrum Epis. Aberd.*, i. 219, 289. Anderson's *Charters and Other Writs*, p. 354.

access from the Glenbervie and Drumlithie region to the northern end of the Cairn-a'-Mounth road, and *vice versa*.[1]

### 6. Builg Mounth.

An unimportant pass leading from Glenfarquhar to Deeside, but doubtless well known as a drove road since it connected Auchinblae and Glenfarquhar with the Great North Road without going over the Cairn-a'-Mounth. It lay farther west than the Stock Mounth. From Paldy Fair it went by the line of the Bervie Water north-westward, crossed the Builg Hill, where the Bervie rises, and forded the Builg Burn immediately south of Little Kerloch, crossed the Dye Water near Heatheryhaugh, and struck the Cairn-a'-Mounth road slightly north of the Bridge of Dye, a few hundred yards south of Scolly's Cross Farm.[2]

(*To be continued.*)

---

## OBITUARY.

**The Rev. Robert Mackenzie, M.A.**—The Society has lost one of its oldest and most interested members in the Rev. Robert Mackenzie, M.A., of the West United Free Church, Alloa, who died, aged 64, very suddenly in his vestry on Nov. 16 last, just before Sunday evening service.

At the time of the Society's formation Mr. Mackenzie was minister of the Livingstone Memorial Church, Blantyre. Brought then into intimate touch with the noble career of the great Scottish explorer and missionary, he hailed the opportunity, by connection with the Royal Scottish Geographical Society, of extending his geographical knowledge, and giving practical support to new schemes of exploration inspired by the example of the Blantyre lad who became so famous. Having a strong literary bent and sound judgment, he did a good deal of reviewing for the *Scottish Geographical Magazine*. In the earlier years of his ministry Mr. Mackenzie travelled considerably, and the writer of this notice greatly prized his genial companionship in tours to Sweden, Germany, Switzerland, Austria-Hungary, Italy, and other countries. Especially does he remember a somewhat extensive run across Europe

[1] The Stock Mounth is now a poor track, but easily to be distinguished almost the whole way. The Well of Monluth, a clear bubbling spring by the wayside, is still there, though uncared for, and in that quarter the Mounth track passes along the hillside above a vast quaking bog, about half-a-mile long by about 200 yards wide, the best example, probably, in all that region of a moss in process of formation.

[2] Although the Builg Mounth has a Gaelic name it probably is not—almost certainly is not—derived directly from the Gaelic, but from the hill, or perhaps a loch that may have existed there. Balg (genitive Builg) means a bag, and if this is the derivation it may refer to the shape of either the hill or a loch. It could not refer to a road. In point of fact, the Gaelic people in this part of the country had no roads before the English settlers arrived. They had no word to express the idea of a road in the ordinary sense. The roadway of the Builg Mounth is still well marked in places.

in the summer of 1889, beginning with the Paris Exhibition and winding up with the Tercentenary Celebration on the spot of the Glorious Return of the Waldenses to their Valleys in Piedmont. That was an experience full of delightful adventure, as was also in a different way a journey taken the year after to the country of the Passion-Play and Central and Southern Italy.

Mr. Mackenzie's chief achievement in literature was the *Life of John Brown of Haddington*, published so recently as 1918, and now for the time being out of print—a book that will take its place among the standard biographies of Scots worthies. While he was pre-eminently a hard-working pastor and preacher, he found much recreation and profit in the study of history and geography as literary hobbies. His brothers, Sir James Mackenzie, M.D., LL.D., and Sir W. W. Mackenzie, K.C., have won high distinction in other fields. He preferred to follow the best traditions of the Christian ministry in Scotland, and had he lived a little longer would have received the academic doctorate he so well deserved. J. R. F.

## GEOGRAPHICAL NOTES.

### Europe.

**Britain and Air Power.**—A recent article in *Nature* on "The Need for Aircraft Research" raises some interesting general points of considerable importance to geographers. These may be indicated by some quotations. "The enemy to-day is the geographical position with which this country is endowed. England is not on any air route to anywhere, and its climate deserves, from the air navigator's point of view, all that has been said against it. The sheer march of natural events will not make us an air power as it has made us a naval power." "The urgent need is for the provision of means with the utmost rapidity to enable flying in this country, whatever its climate, to be as regular and safe for the traveller as it will surely become in the very near future in other countries."

The writer goes on to point out the importance, from the airman's point of view, of the frequent presence of ground fog, especially in winter, and to suggest certain necessary lines of research to obviate the dangers due to this. The geographical aspects of the problem are not further elaborated, but those with a knowledge of the history of the progressive shift of naval supremacy can readily fill in the gaps.

**The Port of Strasburg.**—With the return of Alsace-Lorraine to France the question of the future trade connections of Strasburg becomes of great importance. The subject was discussed in detail at the Congress of the French General Association of Inland Navigation, held in the town last September, and the French journals (see *La Géographie* and *Les Annales de Géographie*) give it a considerable amount of attention.

As regards Rhine navigation, during the Middle Ages the town participated actively in this, but long before the war of 1870-1 the works undertaken to prevent flooding in the Bâle-Mannheim section had deprived the town of direct connection with the river trade. Under German rule Strasburg suffered from the jealousy of the Baden ports, whose inhabitants were afraid of losing trade. Nevertheless in the period before the late war two ports were established in the town, and the navigation of the section between Mannheim and Strasburg improved. As a result, between 1895 and 1913, the Rhine traffic at the town increased greatly, though it was almost exclusively downstream. The most important goods received were fuel (coal, coke, briquettes) from the Ruhr basin, and cereals—while those despatched were chiefly iron goods and machinery, and potash salts. The progress of Strasburg as a port alarmed the people of Baden, who, in 1900, opened the port of Kehl, exactly opposite the town, on the other bank of the river. Kehl also progressed, and, though in 1913 its trade was only about one-quarter of that of Strasburg, the difference was diminishing yearly. By the peace treaty, it will be remembered, Kehl is to remain under French administration for seven years.

The development of Strasburg and Kehl has made these ports the head, for all practical purposes, of Rhine navigation, instead of Mannheim and Ludwigshafen. This development meant, however, that the trade of the town was chiefly directed towards Germany and the seaports of Antwerp and Rotterdam. With the political change it becomes necessary to attempt to form economic bonds with France. Connection by water with France and with Switzerland does already exist, but the conditions are not such as to permit of active trade.

Between Strasburg and Bâle the river is so swift and the flow of water so variable that navigation is very difficult, and only possible for small boats. The training works have also increased the force of the current. It is suggested, therefore, that the river should be used to generate electricity, and that a new ship canal should be made at the side, by means of which the large Rhine boats could proceed up to Bâle. More elaborate schemes involve a connection between this waterway and that which the Swiss hope to construct from Bâle to Geneva *via* the Aar River and Lakes Bienne and Neuchâtel. If the works projected in the Upper Rhone are also carried out this would involve a further connection through Geneva with Lyons, Marseilles, and the Mediterranean.

As regards direct connection between Rhine and Rhone, *via* the Saône, a Rhine-Rhone canal, of course, already exists. But it is quite unsuited to modern transport, especially of heavy goods. The improvement of this waterway has already been undertaken, and it is expected that by means of it the potash salts of Alsace and the coal of Germany will be carried into the heart of France.

Westward Strasburg has water communication with North France by the Rhine-Marne Canal, but this similarly requires improvement. By means of the Seine such improvements would put Strasburg in direct connection with Rouen and Havre. The question therefore arises whether the industries of Mulhouse could receive their necessary raw

materials (especially cotton and wool), and export their potash salts (which go chiefly to the United States) through these ports. The slowness of communication by canal, and the high freights seem to render this improbable, and to make it more likely that Alsace will continue to export and import *via* the Rhine and Antwerp or Rotterdam.

In addition to the improvement of its water connections, the ports and docks of Strasburg require enlargement. Under German rule the town was simply an *entrepôt* for goods destined for Alsace or the adjacent parts of France, the transit trade being diverted to Kehl. It is hoped that, attached to France, it may not only combine these two kinds of trade, but become in addition a notable seat of industry, for which its position, and its easy access to the iron of Lorraine, the coal of Germany, and to extra-European raw material *via* the Rhine render it well adapted.

**The Plebiscite Area of Upper Silesia.** — Mr. A. R. Hinks contributes to *The New Europe* for February 12 an article on this subject, which is illustrated by a very useful little sketch-map. In the text he points out some of the curious anomalies which rise out of the wording of the Peace Treaty. He believes that the plebiscite area here was a late device, inserted in the treaty at the last minute, without proper discussion by the geographers. One of the stipulations is that a part of the kreis of Leobschütz is to go to Czecho-Slovakia, if, after the determination of the frontier between Poland and Germany, it is isolated from the latter country. The inhabitants of the area, however, are themselves to vote whether they wish to be attached to Poland or to Germany. But the stipulation mentioned shows that however they vote they may become Czecho-Slovak, for choice on their part can only be effective if the boundary between Germany and Poland is so drawn that their own area is not isolated from Germany, and that depends on the voting in the plebiscite region proper. Some other points are raised in regard to the voting, and the article shows—if further proof is necessary —that the "principle of self-determination" is too abstract to be of very much significance in the determination of boundaries in the case of new states. Necessarily also the difficulties are greatly increased when the "principle" is applied by persons insufficiently acquainted with the local conditions, and living at a distance from the region in dispute.

**The Geography of Macedonia.**—As one of the minor results of the presence of Allied Forces at Salonika during the war, various geographical papers are being published by officers who had opportunities of observation in the surrounding country during their period of service. Two of these may be briefly noted. In the *Annales de Géographie* for November 15, Lieutenant D. Faucher discusses the characters of the lofty chain of mountains which limits the depression of the Lower Vardar to the west so far north as the basin of Gevgeli. As the author points out, the work of the geographer has been greatly facilitated by the surveys carried out by the Allied military cartographers, and he has used the military map in the field, and has been able to make some

observations and deductions in regard to the morphology of the Gandatch, as the northern part of the mountain chain named above is called. His paper, which is of a technical nature, does not lend itself to the purposes of a short abstract, but is of value as throwing light upon the difficult problems connected with the land-forms in Macedonia.

Of a more general nature is Captain Alan Ogilvie's paper, entitled "A Contribution to the Geography of Macedonia," which appears in the January issue of the *Geographical Journal*. This paper is illustrated by a map and some very fine photographs, and is comprehensive—geology, land-forms, vegetation, fauna, human races, and the life of the peoples being all discussed. For details the paper must again be consulted, but we may note, as of especial interest, the statistics given as regards the prevalence of malaria among the British troops. In 1918, no less than 59,087 persons were admitted to hospital suffering from this disease, being over thirty-seven per cent. of the force. The death-rate was comparatively small, but nevertheless the seriousness of the disease can hardly be over-estimated. Further, it is stated that the children of the Macedonians are attacked "as a matter of course," and in one village seventy per cent. were found to have enlarged spleens as a result of attacks. The adults are more resistant, if not immune, but remain anæmic, and their indolence is regarded as a possible result of early attacks. To minimise attack by the malaria-carrying mosquitoes, the villages, as in Italy, tend to be placed on the higher ground, and thus the peasants have often to go some distance to their fields. It is not remarkable, therefore, that Captain Ogilvie puts the draining of the swamps and the reduction of malaria as the first of the requirements of Macedonia before prosperity can be hoped for. Of irrigation, as practised at present, he gives an interesting account, while he places its organisation on an equitable basis as the second great need of the country.

Among other points of interest, he notes the spread of scientific agriculture in the Lower Struma plain, where enterprising Greeks are starting groups of farms, each farm being devoted to a particular crop, —*e.g.* rice, cotton, tobacco, cereals, and so on—and are employing machinery. Elsewhere agriculture tends to be primitive and highly diverse, though, in addition to the produce required for the farmer's own use, he grows small amounts of tobacco and opium poppy for sale. For scientific forestry Captain Ogilvie believes there is an opening, and markets are close at hand in the Ægean lands where timber cannot be grown. The roads and light railways made by the Allied forces will in many cases be of direct use to the people in time of peace, but in addition they have learnt many valuable lessons both in regard to the possibilities of road-making with home material, and in connection with sanitation.

## Africa.

**Contrasts between the Algerian and Egyptian Sahara.**—M. E. F. Gautier, whose researches on the Algerian Sahara are well

known, had during the war an opportunity of visiting the part of the Libyan desert which extends into Egypt. In an article in the *Annales de Géographie* for Nov. 15, he draws attention to some striking contrasts between the two, and uses his observations as a basis for some interesting notes on the human geography of Egypt. The observations also make it clear that the common assumption that the Sahara is more or less uniform throughout its vast extent is erroneous.

The first point is that the two deserts are closely similar both as regards present-day climate and geological structure. But this only makes the difference of form more striking. The great difference lies in the fact that in the Algerian Sahara (cf. the article by Capt. Augieras summarised here in the December issue, p. 389), there is a complete network of dead rivers, the characteristic Saharan wadis. Such branched wadis are absent in the Libyan desert. There the oases occur in basin-shaped depressions, surrounded by cliffs. Again, in the Algerian Sahara not only are the river valleys left, though their water has disappeared: there are also wide plains floored by alluvial deposits, to which the natives apply the name of "Reg." Such deposits of alluvium are unknown in Egypt, where the word Reg does not seem to be used. In place of such deposits we find that the desert is floored by bare, wind-denuded, Nubian grit. Once again, in parts of the Libyan desert, *e.g.* in the Wady Natrun, there occur deposits, of Miocene age, which from their fossils have been recognised by geologists as of delta origin, and are believed to point back to an earlier Nile which flowed much to the west of the present one. But of the valley of this earlier river no trace remains; it has been completely obliterated by wind erosion. Finally, there is a marked contrast between the dune areas, or the *erg*, in the two deserts. In the Algerian Sahara the dunes show a fairly close relation to the vanished river system, and are not necessarily wholly devoid of water, which can sometimes be reached in the beds of the ancient wadis. Pasturages are therefore not infrequent. The Great Erg of the Libyan desert is so repellent that it is virtually unknown to Europeans, and cannot even be crossed by natives. To illustrate the latter point M. Gautier makes use of a pretty example. During the war years 1915 and 1916 the Senussi occupied some of the Egyptian oases, notably that of Dakhla. Now their capital is the oasis of Kufra, almost in the same latitude as Dakhla, but separated from it by the Libyan Erg, and distant some 440 miles. But, both in their advance and in their retreat, the tribes made the long detour by the oasis of Siwa (Jupiter Ammon), a distance of about 1250 miles, rather than face the inhospitable dune country.

The reason for the contrasts between the two areas M. Gautier finds in a difference of age. The Algerian desert is recent, and has retained almost intact the surface modelling due to river erosion which it owes to a recent rainy epoch. It is thus more suited for human occupation than the old Libyan desert, the land-forms of which are due entirely to wind erosion. This again leads him to emphasise the isolation of Egypt from the rest of North Africa. The Nile runs, as is often emphasised, between two deserts, the Arabian and the Libyan. But both are long

and narrow. The former abuts on the Red Sea; the latter is, from the human standpoint, definitely bounded on the west by the Great Erg. Egypt is thus closed to the surrounding lands both to the east and the west. Eastwards the isthmus of Suez gives it a gateway into Asia; westward what may be called the isthmus of Siwa (Jupiter Ammon) forms a gateway to the west. He who holds this oasis holds the desert door. Within her boundaries Egypt is unique among the desert lands of North Africa in having three great lines of communication—the Red Sea, the Nile, the Mediterranean coast from Alexandria to Sollum. The country is thus marvellously placed for a military and imperial power. In Algeria the conditions are far less favourable.

The geographical conditions are reflected in human life. In Egypt the sedentary cultivator has been master throughout history. The pastoral peoples can only find food for their flocks in the oases or along the Nile, and the pastoralist is the Bedouin, a despised individual, without status, the equivalent, says M. Gautier, of the European tramp. But in Algeria, where pastures are to be found throughout the desert areas, the pastoralist is the nomad Arab, the "son of the tent," the soldier, the cavalier of fortune, the master of the cultivator, who has only found freedom under an alien domination—Roman or French. The same argument is driven home by a comparison between the camel and its trappings in Algeria, where the animal (the méhari) is swift and the saddle light, and the camel of Egypt, where the heavy saddle used is of Sudanese origin, Egypt having neither true nomads nor traditions connected with the use of the camel as a means of crossing vast spaces in the minimum of time.

**New Frontiers in "German East Africa."**—The administration of what was formerly German East Africa is now being put upon a permanent basis, although the course of the boundary between the areas under British and Belgian control is not finally fixed in detail, owing to the fact that it is to depend upon the route selected for a new railway into western Uganda, which has not yet been surveyed. Belgium is to retain, under the League of Nations, the province of Ruanda, save for an eastern strip in which this new railway is to run, and the province of Urundi, except for the Bugufi district, in the north-east, through which the same railway will pass. Belgium is also to have free economic use of the line from Kigoma, on Lake Tanganyika, to the sea at Dar-es-Salaam, through Tabora, for exports from the east-central parts of the Belgian Congo. Concession areas are also to be provided at Kigoma and Dar-es-Salaam for the storage of Belgian goods.

The remainder of what was German East Africa forms the Tanganyika territory under British rule. The Germans, in 1913, had already surveyed a railway line from Tabora to Kaseke, on the Kagera River, and this line is to be constructed by this country. The line is also to be prolonged, across the old frontier, into western Uganda, and the Belgo-British frontier is not to be delimited finally until the course of this prolongation has been surveyed.

## General.

**Ocean Currents and Floating Mines.**—To the *Bulletin* of the Oceanographical Institute, No. 357 (see also *Comptes Rendus* of the Paris Academy of Sciences), the Prince of Monaco contributes an article on the probable course of the numerous mines which are still floating in the North Atlantic and Arctic Ocean, despite the efforts which have been made to pick them up. On the basis of his own former work on the direction of the drift of floats in the Gulf Stream system, he endeavours to plot out the probable course of the mines, and the speed at which they are likely to travel. According to his calculations, those mines which make the complete circuit of the North Atlantic will take four years. The vicinity of archipelagoes will be particularly dangerous to shipping.

**General Korniloff as Geographer and Explorer.**—In a recent issue of *La Géographie* a short account is given of the career of the late General Korniloff, who was an explorer of some distinction. He was born, of Cossack parentage, in a small village in Western Siberia, and passed his early days in the Siberian steppe. After a brilliant career in the military schools he was sent to Turkestan, where he learnt the Turcoman language. Later he was stationed at Bokhara, and made a brilliant reconnaissance in disguise in Afghanistan. In 1899 he was sent into Kashgaria, and spent eighteen months in travelling through unknown regions, publishing his results in book form at Tashkent. In 1901 he spent seven and a half months in Khorassan and Seistan, crossing the "steppe of despair," and making a large number of geographical and ethnographical observations. He took part in the Russo-Japanese war, and was at Vladivostok when the Great War broke out. At the time of his murder at Ekaterinodar, in March 1918, he was under forty-eight years of age, and had spent nearly forty years in Asia.

**Royal Geographical Society's Awards.**—The Founders' Gold Medal of this Society has been bestowed, with the King's approval, on Mr. H. St. John Philby, who was engaged during the war in political work in Arabia, and has made large additions to our geographical knowledge of that country. Among his journeys was included a complete crossing of the peninsula from the Persian Gulf to the Red Sea. The Victoria Medal has been granted to Lieut.-Col. H. S. L. Winterbotham, C.M.G., for his work in connection with artillery survey on the Western Front. Prof. Jovan Cvijić, Rector of the University of Belgrade, receives the Patron's Medal. Prof. Cvijić has written much on the geography of the Balkan Peninsula, and his books and papers have frequently been noticed here. Miss Czaplicka has been awarded the Murchison Grant for her ethnographical and geographical work in Northern Siberia, while the Cuthbert-Peek Grant goes to Mr. A. W. Chinnery, to assist him in continuing his work in the unexplored parts of New Guinea. The Back Grant goes to Mr. J. M Wordie, a member of

Sir Ernest Shackleton's last expedition, and the Gill Memorial to Mr. Reginald Farrer for his journeys on the Chinese borders of Tibet.

## Economic Geography.

**Scottish Minerals.**—The Summary of Progress of the Geological Survey of Great Britain, for the year 1918, gives some notes on work done in Scotland in connection with the investigations which have been taking place into the Economic Resources of Great Britain. Thus a summary account is given of Scotland's resources of oil-shale. The oil-shales have been worked since about 1862, and it is estimated that up to 1917 about 100 million tons had been mined. In addition an allowance is made of 20 million tons to cover the amount lost in working, making a total of 120 million tons. It is estimated that the proved and probable reserves in the oil-shale fields found in the counties of Midlothian, Linlithgow, Lanark, and Peebles amount to over 600 million tons. As the present output is about 3 million tons per annum, and making an allowance for future wastage and the amount already mined, an approximate estimate of 133 years is given as the time for which these proved and probable reserves will last. In addition, however, the four counties named, together with Fife, contain possible reserves amounting in all to over 880 million tons. If all these proved available the period of exhaustion would be postponed till the lapse of some 383 years.

Another section is devoted to the lead and zinc mines of Scotland. It is noted that while in the pre-war period Leadhills and Wanlockhead were the only lead mines being worked in Scotland, the increase in the price of lead during its course has made it possible to open up old mines at Newton Stewart and Tyndrum, and also a small new mine at Achanarras in Caithness. The output at Leadhills and Wanlockhead has also increased. At the former lead only is obtained, but zinc is also mined at Wanlockhead, as well as at Newton Stewart and Tyndrum. The veins at Tyndrum had not been worked since 1862 till they were reopened in 1917. It is stated that the mines of lead and zinc at Strontian, on Lake Sunart, may be worth reopening. They have been closed since 1871.

Some account is also given of the discovery of bauxite fire-clay in North Ayrshire, a discovery which it is believed may have economic importance.

**Traffic through the Panama Canal.**—It is well known that the opening of this canal virtually coincided with the outbreak of war, so that trade conditions have been abnormal during the period of its existence. With all deductions made, however, it is of interest to note the nature and amount of the traffic since the opening. In the *Revue Générale des Sciences* M. Pierre Clerget gives a summary account for the years from July 1914 to July 1918, a period which included seven months' interrupted traffic in 1915-16, owing to the landslips in the Culebra Cut. Except for this year the number of ships passing through the canal has increased steadily from 1088 in 1914-15 to 2130 in 1917-18. In the

last-named year Britain led in the number of ships with 699, the United States following with 628. Traffic is more intense from the Pacific to the Atlantic than in the reverse direction, and nitrates greatly predominate (23 per cent.) in the cargoes carried. It is however at least possible that this was partly the effect of war conditions. It is noteworthy that so far tea and silk, the chief imports from the Far East to the United States, are landed at Pacific ports and do not use the Canal. Again, communication between New York and Australia is chiefly carried on *via* the Cape, while a considerable proportion of the exports from the British Isles to that continent are carried *via* the Panama Canal. Some years must elapse before it becomes clear how far these war trends of trade will be permanent.

**The Cape-to-Cairo Railway and Train Ferries.**—In the February number of the *Geographical Journal*, Mr. H. Wilson Fox returns to the question of a direct route between the Cape and Cairo, of which little has been heard in recent years. The main object of his paper is to suggest that continuity of communication might be effected by the introduction of train-ferries on the three great lakes of Nyasa, Tanganyika, and Victoria Nyanza, and a through passenger route thus constituted at less expense than would be necessary for the laying of a continuous line of rail. His paper is illustrated by a fine coloured map on which the routes and ferries proposed are clearly marked, as well as by a number of sketch-maps. There is also an interesting discussion of the general question of train ferries, with some good illustrations, especially of the Richborough ferry. Mr. Wilson Fox's main proposals came in for a good deal of criticism in the discussion which followed the reading of the paper, but it contains a large number of useful facts and statistics. There is also a very clear sketch-map showing the proposed extensions of the Shiré Highlands railway. The Colonial Office has recently decided to extend this line from Luchenya northwards to Pagonas on the south-east shore of Lake Nyasa. Mr. Fox suggests that, in place of Pagonas, the northern extremity should be at Malindi, only three miles farther, which is much better fitted to become a large commercial port. The southern extremity of the Shiré Highlands railway, it will be remembered, is at Chindio, on the left bank of the Zambezi. Arrangements are, however, said to be in an advanced state for carrying a railway from Beira to the right bank of the river, near Sena. This would inevitably lead to the early construction of a bridge across the river, which would give direct connection to Blantyre from Beira.

In an appendix to the paper Sir Alfred Sharpe maintains once again, as against Mr. Wilson Fox, that the important point as regards Central Africa is that the different areas should have direct connection with coastal ports, and that continuous communication between the Cape and Cairo must follow and not precede the development of direct outlets for the area of the Great Lakes.

## NEW BOOKS.

### EUROPE.

*In the Prison City: Brussels*, 1914-18. *A Personal Narrative.* J. H. Twells, Jr. London: Andrew Melrose, Ltd., 1919. *Price 5s. net.*

This vivid narrative is from the pen of an American who lived through the whole of the German occupation a free man, if one may use the term in this connection, and who was thus able to move about and see for himself what was passing. He dwells repeatedly upon the wonderful, almost unreasoning, courage of the Belgians, a quality which their oppressors knew how to exploit by deliberately torturing them with false hopes. He tells of the delight of the people in the defiant words of *Libre Belgique*, of the midnight burials of copper and food—the MS. of this book was for many months below ground—of the immense worth of the neutral food supplies, and gives piquant tales of how the Hun was hoodwinked by clever stratagems. The Teuton hatred of England, he says, affected the invaders as a red rag does a bull, and the execution of Nurse Cavell was a deliberate act of vengeance towards a hated nation, for others were spared who were more deeply implicated. That this feeling was realised by the Belgians was shown by their special enthusiasm for the British when the time of release came. The author mentions the curious friendliness of the people with the German soldiers of 1918. These were more human than their predecessors, and, indeed, often excited feelings of pity.

The story of the last days of the German occupation makes specially interesting reading. The city, it seems, only escaped by a hairsbreadth from a designed explosion which would have wrecked it completely, for it was a standing boast that Brussels was to be "the Bouquet of the whole war." It is a typical illustration of the unblushing enterprise of the Teuton that a vast number of the Allied flags displayed when King Albert made his re-entry, were manufactured for the occasion by a German merchant of Bonn. The book will repay perusal.

*My French Year.* By Constance Elizabeth Maud. London: Mills and Boon, 1919. *Price 10s. 6d. net.*

In this pleasantly written and well illustrated book, Miss Maud tells how in August 1917 she went to France as a delegate of the Croix Rouge Britannique to see as much as possible of the needs of the hospitals, canteens, and inhabitants of the country devastated by the war, so that English friends might supply them. She gauged the value of the foreign languages, as often taught in the best schools, by finding English and French officers who could not speak to each other. "What a reflection on our so-called civilisation and education! Here were three of the finest specimens of English and French gentlemen unable to exchange an intelligible idea, though fighting side by side for the civilisation of the world, and brought up within a few miles of each other, divided only by the Channel and the narrow but impassable gulf of speech—a bridge so easy to construct, yet not considered necessary."

At Blérancourt she found "the Settlement of American Ladies busily at work giving out boots and clothes at their depôts for relief, stocked with shiploads from America. They had taken over a number of villages in the devastated regions of this part, and as the inhabitants flocked back to the ruined homes from which they had been driven by the Huns, they helped them to start life again. But though Americans and English have done much to help them, the people best able to raise

the stricken inhabitants of the devastated regions are naturally those of their own faith, their own speech. The French woman who has lost her husband, her son, whose home has also been burnt to the ground, who uses the same speech, and finds comfort at the same altar—she can speak to her poorer sisters from the depth of a common suffering."

The author also tells us about the work of the *Dames Anglaises*. "These settlements, of some fifteen to twenty young women working under their *directrice*, are to be found all over the stricken districts of the Somme and Oise, at Arras, St. Quentin, and Pierrefonds. Welcomed by the Préfets and Mayors, the *Dames Anglaises* settle down where help is most needed, and take within their radius of sweetness and light some forty to fifty of the devastated towns and villages. Directly the Germans quitted French soil, the refugees began to turn their wandering steps homewards," to find the *Dames Anglaises* or the American ladies quietly engaged in building up the sufferers' ruined lives.

*A Month in Rome.* By André Maurel. Translated by Helen Gerard. New York and London: G. P. Putnam's Sons, 1919. *Price 9s. net.*

Another book by the author of *Little Cities of Italy*, already reviewed here, which is very accurately described by its author in his preface. He says of it that it is "the fresh—naive if you will—impressions of the tourist of average culture and unlimited interest, . . . a book that the hurried visitor may thumb as he walks about." In another phrase M. Maurel asks to be accepted, not as a guide, but as a companion.

The contents are arranged under thirty headings, each being supposed to represent a day's sight-seeing, but no attempt is made to plan out a scheme for the lazy tourist. Rather does the author flit from one part of the city to another, from the classic ruins to the Renaissance buildings, from the busy streets to the Campagna and the Alban Hills, in conformity with his own moods, returning always to the Forum as the historic centre. The descriptions of the gardens there form indeed one of the most charming things in the book. From another point of view M. Maurel's impressions of the Baths of Caracalla and the Colosseum, considered in one chapter for artistic rather than practical reasons, should be noted as a fine expression of what many must have felt. The author's summary and comprehensive condemnation of the churches of Rome will also bring balm to the heart of many a tourist who has rebelled after visiting the first dozen or so, while there are some delightful remarks on the subject of St. Peter's.

The book is well and clearly printed, is of a very convenient size for the traveller, has a large number of good illustrations, and many small street plans, and it may be very cordially recommended to the kind of traveller for whom it is intended. It is to be regretted that the English edition has not been furnished with an index, a very serious omission in a book of this kind, and a brief bibliography would have been a useful adjunct. The translation on the whole reads well, though some of the transatlantic forms of speech adopted grate upon the sensitive ear.

*Problèmes Économiques d'après Guerre.* Par L. de Launay. Paris: Armand Colin, 1919. *Prix 3 fr. 50 c.*

In spite of its general title M. de Launay's book is devoted to French industrial problems, agriculture being scarcely mentioned. The fact is brought out even by the headings of the five chapters, which deal successively with Industrial Organisation, Supply of Raw Materials, Transport, Labour, and Sources

of Power. The whole treatment also makes it clear that the author considers that France can only recover from the losses of the war by an increased development of large-scale industry, and that this development must be at the expense of Germany. Nevertheless, he is not oblivious of the great difficulties which France has to face in attempting to carry out such a programme. Her limited supplies of coal, and the practical absence of petrol, alike in the mother country and in the colonies, is one, and M. de Launay is without illusions in regard to the extent to which the French resources of water-power can be used to make up for those deficiencies. He points out that although coal is in the act of losing a part of the supremacy it enjoyed during the nineteenth century, yet there is no immediate prospect of its complete replacement. In France he believes that water-power can only be utilised on a large scale over a relatively small part of the country.

Other difficulties with which France is confronted are the condition of her mercantile marine, which has suffered very severely from the submarine campaign, the arrangement of the railways, especially the extent to which Paris predominates as the main centre of the country's system, and the lack of man-power. As regards the last, he anticipates that for some time there is likely to be much unemployment, owing to the way in which the industrialised region has suffered; ultimately, however, he looks forward to a great and growing shortage. His standpoint will, perhaps, become clear when it is said that he contemplates the possibility that France may find it necessary to import Chinese labourers. He recommends indeed that attempts should be made, by the multiplication of technical schools and institutions, to turn the majority of French workmen into skilled artisans, with the understanding that unskilled work should be carried on by imported labour or by machinery. This raises, of course, a whole series of complex problems which the author does not discuss. But in any case a great development of industry in a country handicapped as regards all its basal requirements must present profound difficulties.

*Russia in Rule and Misrule: A Short History.* By Brig.-General C. R. Ballard, C.B., C.M.G. London: John Murray, 1920. *Price* 6*s. net.*

An unpretentious and brightly written little book, giving, in briefest summary, the earlier history of Russia, and describing in some detail the events of the revolution up to the end of 1917, and the history of the years of preparation, involving the whole reign of Nicholas II.

General Ballard was sent out to the Eastern front in May 1917, and thus had an opportunity of following the events of that year of crisis at close quarters. His knowledge of the language made it possible for him to utilise fully his opportunities, both in conversation with Russians and by reading Russian books, pamphlets, and periodicals.

The book has two simple sketch-maps, some useful chronological tables, and two appendices, one giving notes on the more important personalities who have played, or are still playing, their part during the events of recent years, and the other containing a striking translation of a parable of the Revolution which appeared in a Russian magazine. The book will not, perhaps, add much to the knowledge of those who have already sought for light on Russian dark places by reading the numerous books and articles which representatives of the Western nations, who have visited the country, have put at our disposal since the Revolution. It has, however, the great advantage that its author for the most part limits himself as regards the Revolution to facts which he himself observed, or to translations of Russian documents; he makes no pretence of having made a profound study of the subject, and has no theory to propound nor thesis to support. He writes

also easily and pleasantly, omits all tales of atrocities, and has moreover a strong sense of humour, a quality which has not been much in evidence in discussions of recent Russian history. His book should, therefore, be widely read.

*Ptolemy's Maps of Northern Europe: A Reconstruction of the Prototypes.* By Gudmund Schütte, Ph.D. Published by the Danish Geographical Society. Copenhagen: H. Hagerup.

Several chapters of this book were published in this *Magazine*, and the author in his preface acknowledges the loan of blocks by the Society. His work was rendered possible by grants from the Carlsberg Fund and from the Royal Danish Academy of Sciences, and constitutes the first fundamental analysis of the classical "orbis septentrionalis."

*The Turks in Europe: A Sketch Study.* By W. S. D. Allen. Preface by Brig.-Gen. H. Conyers Surtees. London: John Murray, 1919. *Price* 10*s.* 6*d. net.*

In this history of the rule of the Turks in Europe the story is carried down only to the treaty of Bukharest, the author believing that material is not yet available for a study of Turkish policy during the war. The accounts given of recent events in the Balkan peninsula are sketchy, perhaps excessively so in view of the number of books, reports, and documents of various kinds which have seen the light within the last few years; but the object of the book appears to be merely to supply to the unspecialised reading public a summary description of the "Turkish Night." The author concludes by pointing out the sufferings imposed by the official Turkish policy on the Turkish peasants themselves.

## ASIA.

*A Pilgrim in Palestine after its Deliverance.* By John Finley. London: Chapman and Hall, Ltd., 1919. *Price* 10*s. net.*

Colonel Finley, for such we gather was the author's military rank, is an American of Scottish descent, who, evidently in June 1918, took command of an American Red Cross detachment which had just been sent out to Palestine. He was thus at Jerusalem when General Allenby's army opened the great series of victories which began on September 18th with the "break-through" on the coast in the battle of Sharon, and ended on October 31st with the armistice which took Turkey out of the war. Colonel Finley's official position was evidently such as to bring him into fairly close relations with Army Headquarters and the Commander-in-Chief himself, of whom he gives a sketch. He is naturally full of admiration for General Allenby's capacity as a soldier and for the complete success of this campaign. It is well to remember, however, that the extraordinary victory of 1918 had been prepared by the much harder fighting in 1917, which had broken the back of the Turkish resistance, and established the British line in good strategical positions in advance of Jaffa, Jerusalem, and Jericho. But Colonel Finley does not tell us much of the actual military operations. He is a keen pedestrian and an enthusiastic Biblical student, eager, though not very critical, in the identification of the sites of Scripture history. His book, with its alternate descriptions in prose and verse, is somewhat slight in treatment, but may be not uninteresting to those for whom it is specially intended, "those who cannot in person go, and on foot, to these holy places, to recover this little land again for themselves." It suffers considerably from the absence of any sort of a map. A

few slips which may be mentioned are all on page 38: "Sir Harry Channel" for "Sir Harry Chauvel," "Nabr Falik" for "Nahr Falik," and "El-Alfule" for "El-Afule." In the verses on page 45 Colonel Finley should note that it must be very rarely indeed that a camel-driver uses a *goad*.

*History of the Portuguese in Bengal.* By J. J. A. Campos. Calcutta and London: Butterworth and Co., 1919.

This book is stated by the author to have grown out of a series of lectures delivered in Calcutta, in commemoration of the fourth centenary of the advent of the Portuguese in the Bay of Bengal. It is to be a preliminary to a larger work on the history and geography of Bengal. In addition to the general account of Portuguese discoveries in the East, and their establishment in India and China, which belong of course to historical geography, there is an interesting description of Bengal in the early part of the sixteenth century, and a special chapter on Portuguese trade in the country. There is also an annotated list of plants believed to owe their presence in India to the Portuguese, and lists of words used by Anglo-Indians and Bengalis which are Portuguese in origin. The book thus contains much of direct value to the geographer, and is obviously the product of painstaking research.

## AFRICA.

*La France au Maroc. L'œuvre du Général Lyautey.* Par Berthe Georges Gaulis. Paris: Armand Colin, 1919. *Prix* 5 *fr.*

This interesting volume describes the successful manner in which General Lyautey, nominated French Resident General in April 1912, acquired for his country the control of the greater part of Morocco. In the course of her narrative the author passes in review the different methods of colonisation pursued respectively by Britain and France. She tells us that during a voyage General (then Colonel) Lyautey made, when at Aden, the following notes on the great colonial work of Britain:—

"*British Empire*—unity of plan, continuity of design, administrative stability, inflexible method, immediate performance, practical good sense, tenacity, essentially elastic application to country and climate,—in one word, everything which we do not possess."

These eulogistic remarks by General Lyautey are, however, followed by some rather sharp criticisms on British colonisation by the author. She points out an essential difference between General Lyautey's methods in Morocco and those of the British system of colonisation. She says: "Every great British coloniser remains an official. Whether he is master of India, Egypt, Cyprus, or Gibraltar, all that he constructs around him, on the corner of the planet where his lot is cast, becomes a fragment of Britain, a complete and solid fragment made for British life, its joys, pleasures, prejudices, and customs. The native finds no place there. He is kept firmly outside behind the fence, and if he attempts to overstep it a quiet reproof, a thousand times worse than open opposition, makes him conscious of his indiscretion. This weak point in the British armour, this isolating barrier, was the opposite of the system of Colonel Lyautey from the beginning of his work. He introduced collaboration with the native, association with the latter's chiefs, and the principle of dual administration between the protector and the protected. This removed the troublesome problem of an inevitably hostile and irreconcilable conquered population, ready to prefer its own ruin to the triumph of a conqueror which only assured it material security.

"The secret hatred with which the British are sometimes surrounded, in spite of the undeniable justice of their government and the prosperity effected by their institutions, will never be aroused by the French colonisation of General Lyautey, which knows how to obtain everywhere the almost blind faith both of its officials and subordinates, and how to conciliate the population which it subdues."

While we sincerely trust that the colonisation of Morocco will meet with the success which Madame Georges Gaulis assures us is certain, we would point out that there are still difficulties to overcome, such as the question of Tangier. There are also Moorish tribes periodically in revolt. As late as January of the present year, French artillery bombarded several villages near Waza, and dispersed rebels who, pursued by machine-gun detachments, left behind a large number of dead. The problem of successful colonisation is probably more complex than the author imagines.

*From the Cape to Cairo: The First Traverse of Africa from South to North.* By Ewart S. Grogan and Arthur H. Sharp. New edition, London: Nelson and Sons, 1920. *Price 2s. 6d. net.*

This is a new edition of a book which first appeared in 1900, with a preface by Cecil Rhodes. It is re-issued in the "Edinburgh Library" series, in the convenient form common to the series as a whole. There is a map, but the illustrations of the original have been omitted, and the text appears to be abbreviated to a considerable extent.

## AMERICA.

*In the Wilds of South America: Six Years of Exploration in Colombia, Venezuela, British Guiana, Peru, Bolivia, Argentina, Paraguay, and Brazil.* By Leo E. Miller. London: T. Fisher Unwin, Ltd., 1919. *Price 21s. net.*

Within the meagre limits of one volume, Mr. Miller, who was for some weeks a member of the Roosevelt expedition, gives an account of his experiences in South America, where, as a field naturalist and explorer, he wandered up and down for six years (1911-16), broken only now and then by short returns to civilisation. No one can do this without a fine sense of proportion, a keen perception of the difference between essentials and "padding," a command of vigorous and concise language, and an ability to present to his readers a vivid and clear picture of what he has seen and heard. Happily Mr. Miller has these qualities, and has produced a pageant of wild life habits and habitats which introduces us to little known races of Indians, new species of animals, new rivers and sounding waterfalls, and takes us from the steaming swamps of the tropics to the piercing atmosphere of the lordly Andes. The narrative is engrossing and at times thrilling—*e.g.* Chapter vi.—and while the appeal is principally to naturalists, the interests of the geographer and the scientist are not forgotten, and the reader who wishes merely to pass the time cannot but profit by a perusal of the book. The volume is very fully supplied with photographs, but a few more maps (in detail) would have added considerably to its value.

*The Great South Land: The River Plate and Southern Brazil of To-day.* By W. H. Koebel. London: Thornton Butterworth, Ltd., 1919. *Price 15s. net.*

The present is Mr. Koebel's eighth book on South America. One might expect him to be a trifle bored with his subject, but an enthusiast, with a knack of being able to write crisply, interestingly and convincingly, can always find something fresh

to say about his special study. Besides, he has just returned from an extended investigation tour through the River Plate Republics and Southern Brazil, in which new facts have presented themselves. The war has framed South America in a new setting. Features of interest have arisen which cannot be overlooked. To-day we are witnessing the rise of nationalities in South America just as our forefathers beheld the rise of nationalities in Europe in the fifteenth and sixteenth centuries, and even the most disinterested observer cannot but be alive to their development and possibilities; so Mr. Koebel, with his finger on the pulse of the new age in the southern republics, is amply justified in giving his opinion on movements, and guidance to those who desire to help in the self-determination of great lands and to uphold and extend the importance of their own country.

North America has invaded Latin America, and, with the return of peace, there is a prospect of a fine British-American-German tussle for trade supremacy. British manufacturers must see to it that they do all in their power to recover and re-establish our pre-war predominant position in commerce; and further, the Government must, with all its outcry for more production, see to it that certain industries are not throttled. Aeroplanes will have a good market in Argentina, and Mr. Koebel reasonably prognosticates that caterpillar motors will solve difficulties of transport over the "Camp." This is only one example of the possibilities of Britons doing good business with these republics. For many years there is not likely to be a field so pregnant with potentialities for business enterprise, and it will be a ghastly comment on British business acumen if the splendid opportunity of regaining and increasing our over-sea trade is allowed to slip.

The book, especially Part II., deserves close study.

*Heaton's Annual: The Commercial Handbook of Canada and Boards of Trade Register. Sixteenth Year.* Toronto: Heaton's Agency, 1920. *Price* 2 *dollars.*

This book, which shows the usual features, affords some interesting side-glimpses into the progressive development of Canada. Thus we note that, as was to be expected, the world sugar shortage has stimulated the production of maple sugar, which now averages about 22 cents per lb. Though sugar beet has been experimented with in various provinces, it seems only to have attained any success in Ontario. This province also leads in bee-keeping, though Manitoba is making progress; the other provinces are backward, perhaps in part owing to the difficulty of keeping the bee colonies through the winter. It is noted that the industry could be carried on extensively, in *e.g.* Alberta, in connection with the growing of alfalfa on irrigated land, and in Nova Scotia in connection with fruit-production. In the latter province as yet the local market consumes all the supply of honey, while British Columbia, where conditions are favourable, imports the product extensively both from other provinces and from foreign ports.

*Histoire des États-Unis de* 1787 *à* 1917. Par Georges Weill. Paris: Felix Alcan, 1919. *Price* 5 *fr.*

This is another volume of the Bibliothèque France-Amérique, and it is intended to give French readers a brief summary of events in the United States from the voting of the Constitution to the entry into the Great War. It is based chiefly upon American sources, and it is illustrated by a general sketch-map of the States, a historical map showing the dates at which the various States were admitted to the Union formed by the original thirteen, and five other plates, of which three are devoted to portraits of Washington, Lincoln, and Wilson, as representative presidents. There is a bibliographical note, and an analytical table of contents, but no index.

As a whole the book is necessarily outside our scope. At the same time, since it is impossible to consider the history of the country without reference to economic problems, there is incidentally a certain amount of information which possesses geographical bearings. We may note especially the description of the life of the South in the years before and after the Civil War. To the general reader the book will be found of much interest, as giving a concise account of events largely ignored in this country, where knowledge of American history is quite often limited to the War of Independence and the Civil War.

## AUSTRALASIA.

*Unexplored New Guinea.* By W. H. Beaver, F.R.G.S., F.R.A.I. With an Introduction by A. C. Haddon, M.A., Sc.D., F.R.S. London: Seeley, Service and Co., 1920. *Price* 25*s. net.*

It is fairly safe to say that few have more than very hazy ideas respecting Papua and the Papuans. As the author of *Unexplored New Guinea* has it: "Papua suggests a mixture of the usual tropical jungles, coconut palms, coral beaches, and birds of paradise, an intense heat, and painted head-hunters seeking whom they may devour." He immediately shows, however, that such a picture is false. Tropical jungle is conspicuous by its absence. Thick scrub and forest is the real and not the ideal, and in certain parts gives place to nipa or mangrove. A bird of paradise is seldom seen, and when seen is scarcely recognisable. Burning heat is seldom a reality: there may be a damp, steamy climate in the low country, but in the mountains it is considerably colder than would be thought possible. Nor, so far as we can gather, is the Papuan such a picturesquely bloodthirsty person as we had supposed, though on occasion he can be a very uncomfortable neighbour.

The author's chief justification for his book is that no description exists of the huge west end of Papua, except such incomplete accounts as can be gathered from the writings of the early explorers such as Jukes and D'Albertis, reports of such expeditions as that sent out by the Royal Geographical Society of Australia, and the official despatches of Sir William MacGregor. Mr. Beaver was for twenty-seven years Resident Magistrate of the Western Division of New Guinea, and in his official capacity had ample opportunity, of which he fully availed himself, to study this practically unexplored region and its inhabitants. His death at Polygon Wood on the 26th September 1917 cut short a career of much promise. Had he lived there can be no question that he would have further enriched geographical and ethnographical literature.

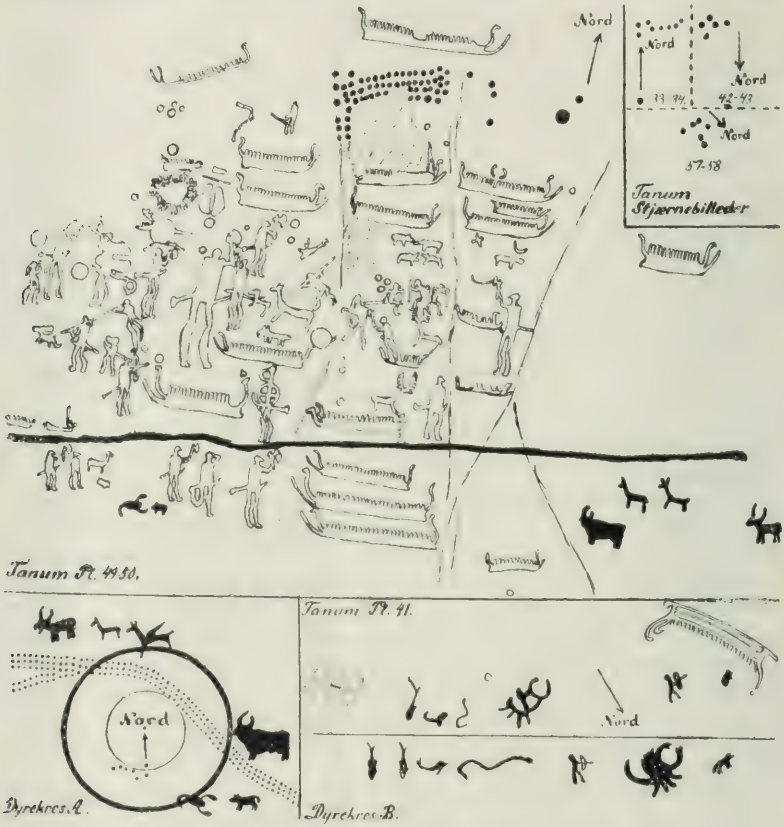
To the economist what is stated of the possible future development of New Guinea will be of interest. The mineral wealth of the country is apparently negligible. Gold, which in itself has the power to set a young colony on its feet, has not been found in payable amount. Coal is not of commercial value, as it is too recent and full of moisture. It appears, therefore, that agriculture must be looked to as affording what possibility of development there is, and even here the prospects are not painted in over bright colours.

## GENERAL.

*Hjemligt Hedenskab: I Almenfattelig Fremstilling.* By Gudmund Schütte. Copenhagen and Christiania: Gyldedalske Boghandel, 1919.

In this book on "Home Mythology," Dr. Schütte states that he has for the first time collected together and classified the Danish records. The Danish

contribution to the story of the gods has hitherto either been overlooked, or mingled with other material, partly because the records are difficult of access, and scattered through the works of the old chroniclers. In consequence Northern mythology has been based upon the Icelandic Edda, Snorre's prose Edda, his Norse Sagas and Saxo's Danasaga. Dr. Schütte's examination of the writings of the old Danish chroniclers has enabled him to trace the mythological element which underlies their historical narratives, and he has succeeded in constructing a Danish mythology into which the old customs, ballads, and legends fit naturally,




Danish Rock-carvings, dating from about 1000 B.C.

and which is in some respects richer than the Icelandic Edda. Following Sir James Frazer he interprets the battle myths as sacrificial orgies, in which the god is ceremonially killed and buried in the person usually of a prisoner of war.

The book has a number of interesting and beautiful illustrations, one of which we reproduce here. It shows rock carvings in Denmark, believed to date from about 1000 B.C., which represent the Plough, the Milky Way, and the signs of the Zodiac, and suggest an earlier flow of culture from south to north than has hitherto been suspected.

Despite its antiquarian and philological lore the book is written in an interesting fashion, and if translated into English would doubtless find many readers here.

Odin, Thor, and the "Aser" gods Dr. Schutte regards as comparatively modern, being personified heroes who arrived with a wave of culture from the south about the time of the Christian era. These gods were preceded by the "Vaner," to whom homage was paid in the form of animals, while at a still earlier period pure nature worship reigned.

*The Mystery of Easter Island: The Story of an Expedition.* By Mrs. Scoresby Routledge. London: Sifton, Praed and Co., 1919. *Price* £1, 11*s.* 6*d.*

Mrs. Scoresby Routledge and her husband are not unknown as investigators of problems connected with prehistoric peoples or their descendants, and to what they say on such problems an attentive hearing must be given. This volume, to be followed by one giving scientific data from which some conclusive results may be expected, gives a popular account of the voyage to Easter Island and its exploration, the investigation of the life, customs, legends, etc., of the present inhabitants, and of the wonderful stone and wooden images about which so little that is authentic is known. It is an entrancing story, deserving the closest study.

Part I. deals with the voyage to the island, and, like the rest of the book, is written in easy and pleasing fashion with little pretence to rhetoric but with strict regard to accuracy. An excellent feature is the paragraph which prefaces each chapter and gives a short sketch of the history and nature of the island or place visited. This part of the narrative is delightfully told. Perhaps the author will pardon our quoting, in no spirit of carping criticism, a delicious solecism. Speaking of Juan Fernandez, Mrs. Routledge says (p. 112), "We were able to see certain portions, mounted on ponies, . . ."

Part II. is concerned with Easter Island—the conditions of life there; its use as a German base in the initial stages of the war: its prehistoric remains, legends, and the present position of the mysterious problem enveloping the island, its inhabitants, their art, script, bird cult, caves, etc. Sixteen fruitful months were spent collecting evidence which might help to solve a problem of unique interest.

Part III. details the voyage homeward from Easter Island to San Francisco; and Part IV., written by Mr. Routledge, and describing the run from San Francisco to Southampton, is racily told, and provides pieces of information both interesting and instructive.

*Mana*, with her varied crew of English, Spanish, Portuguese, West Indian Negroes, a Russian Finn, and two descendants of one of the mutineers of the *Bounty*, was the vessel which housed the expedition, and proved a worthy successor to the *Sunbeam*. She traversed "almost entirely under canvas, without accident of consequence to ship or man, a distance of over one hundred thousand miles," and was awarded, in 1917, the Royal Cruising Club Challenge Cup "for a remarkable cruise in the Pacific" which lasted from February 1913 till June 1916.

The volume is profusely illustrated, and will prove a mine of valuable information for future investigators of the mystery of Easter Island.

*Introductory Questions on African Ethnology.* By George Foucart, President of the Sultanieh Geographical Society. Cairo: French Institute of Oriental Archæology, 1918.

This useful piece of work, testifying to the vitality of the Sultanieh Geographical Society of Cairo, constitutes a distinct service to the sciences of Ethnology and Anthropology and allied sciences like Comparative Religion and Comparative

Ethics. Not that there is much distinctively African, as opposed, say, to Australian or Polynesian, in this Questionnaire. Surely, by the way, it is high time that this term were Anglicised and lifted out of its foreign, pedantic form and conformed to library, dictionary, hymnary, etc. Nor is it by any means the first time that such a Questionary for the systematising and quickening of interest in Ethnology and Anthropology has been drawn up. Sir James George Frazer's *Questions on the Customs, Beliefs, and Languages of Savages* was published in 1907, and Herschel's *Manual of Scientific Enquiry* in 1871. But although this is neither distinctively African nor an entirely novel Questionary, excellent service is rendered to the cause of exact, of comparative, and of historical knowledge regarding man by each new endeavour to place such Questionaries before officials and missionaries and traders resident among backward peoples ; they are indispensable as guides to intelligent recording of their observations and inquiries regarding the peoples among whom they live. One may even hope and believe that by means of such publications some traders and officials may acquire a real interest in the "natives" around them, and cease to insist to themselves that their residence in such communities is only dreary exile, to be endured for the sake of the pecuniary compensations it brings. This Cairo "Questionary" is much more elaborate than that of Sir James George Frazer, and the questions are grouped differently. The chapters of this Questionary are headed respectively, "Environment," "The Individual," "Material Life," "Dwelling-places," "Occupations," "Individual and Family Life," "Collective Life," "Economic Life," "Property," "Judicial Life," "Intellectual Life," "Æsthetic Life," "Language," "Morals," "Religion."

*Man: Past and Present.* By A. H. Keane. Revised, and largely re-written, by A. Hingston Quiggin and A. C. Haddon. London: Cambridge University Press, 1919. *Price* 36*s. net.*

This volume is one for the ethnological rather than the anthropological student. In its successive chapters it deals with the various races of men: Anthropology deals with the general history of man as man. Although the title of this volume is *Man: Past and Present*, it is mainly concerned, as an ethnological work should be, with the detailed characteristics of the *existing* races, whereas an anthropological work would as naturally, although not of necessity exclusively, be concerned with the *origins* and development of the characteristics and customs of man, setting forth broad generalisations grounded upon widely gathered ethnological data. *Man: Past and Present*, accordingly, after two preliminary chapters upon the known types of prehistoric man and upon the scheme of race-classification to be adopted, is made up of chapters upon the African Negroes, the Oceanic Negroes, the Mongols (Southern, Oceanic, and Northern), the American Aborigines, the Pre-Dravidians, the Caucasic peoples. The successive chapters of an anthropological work would deal with such subjects as Origin of Speech, Origin of Writing, Racial types, Social Organisation, Primitive Religion, Evolution of Moral Codes, and so forth.

*Man: Past and Present* is a store-house of varied and carefully gathered information—gathered without the bias which sometimes appears in such works and arouses distrust. It is a new edition of the standard work of that name by Professor Keane, published in 1899. But in the twenty years that have elapsed since then, ethnological and anthropological opinion has so altered and the amount of available material has so increased that certain sections of the book have had to be largely re-written. Specially noteworthy is the confidence with which, in the later edition, the classification of existing races is professedly based not upon structural (cranial) differences but upon an external characteristic—the hair. The

classification professedly adopted in the later work is—I. Ulotrichi *or* Woolly-haired ; II. Leiotrichi *or* Straight-haired ; III. Cymotrichi, *i.e.* Curly or wavy-haired. In the earlier work the hair character of the several races is certainly the first characteristic to be noted, although not the declared basis of classification. The hair-basis of classification is in keeping with one of the definite conclusions of the work, viz. the specific *unity* of all the existing members of the human family—in other words, that in the strict sense of the term there are no separate species of existing man, but only varieties or types developed locally in their several geographical domains. Into these several domains the primæval ancestors of existing man had been dispersed.

The thoroughness of the revision is manifest in the collection of plates of ethnic types—of the 45 illustrations of ethnic types appearing in the original edition, only 12 are retained among the 97 similar illustrations in the new edition.

Special students, *e.g.*, of Comparative Religion, will find much material in *Man : Past and Present*. Students of that branch of study may be singled out in view not only of helpful suggestions, in places, as to the evolution of Religion from its most primitive manifestations in vague animistic notions of the causes of misfortune, but particularly in view of interesting speculations as to another phase of Religion, viz. the out-branching of Religion, at a certain stage of development, into Fetishism and Ancestor-worship.

*The New Hazell Annual and Almanack for the year* 1920. By T. A. Ingram, M.A., LL.D. London : Henry Frowde, 1920. *Price* 6*s. net.*

*Whitaker's Almanack for the Year of our Lord* 1920. London : Joseph Whitaker, 1920. *Price* 6*s. net.*

An annual is at present practically essential to every one at all interested in public affairs, for the changes in the world at large which have not as yet found their way into books and atlases are so vast as to tax the most retentive memory. Either of these two books will in many respects serve the inquirer well, though, perhaps inevitably, there is considerable divergence of opinion in regard to the statistics for the new States. Thus "Whitaker" gives the area of new Poland as 300,000 sq. miles (kilometres ?), and the population as 30,000,000, the figures in "Hazell" being 85,000 sq. miles and population over 20,000,000—a very serious difference ! The treatment of Yugo-Slavia in the two volumes shows similarly how difficult it is to make precise and satisfactory statements at the present time about conditions in Eastern Europe. It is rather curious also to find that neither volume, so far as we have been able to find, makes any mention of the possible admission of Vorarlberg into the Swiss federation, or lays any stress on political changes in Tyrol, both regions greatly frequented by British tourists before the war and therefore of popular interest. But it would seem that the post-war tourist will have for many years to rediscover his old resorts by personal experience, without much help from books of reference, whose editors are likely to find their work difficult enough without attempting to consider the casual traveller.

*The Relation of the Wind to the Distribution of Barometric Pressure. Manual of Meteorology* (Part IV.). By Sir Napier Shaw, Sc.D., F.R.S. Cambridge : University Press, 1919. *Price* 12*s.* 6*d. net.*

Sir Napier Shaw is writing a large and important Manual on Meteorology, and this part has been completed in advance, as it deals with urgent questions having a direct bearing on the application of meteorology to various war activities, particularly in relation to aerology and gunnery. The work covers a wide field, dealing with such subjects as the theoretical relation between the direc-

tion and velocity of the wind and the pressure gradient producing it. Two chapters are given on the modifying effect of surface friction upon the gradient wind over land and sea, special reference being made to Taylor's papers on "Eddy Motion." Turbulence in the air is dealt with in Chapter v., in which is incorporated an illuminating discussion on the formation of clouds, accompanied by some fine photographs by Captain C. K. M. Douglas, taken from aeroplanes. Observations by Captain Cave and others, showing the observed variation of wind with height in the lower atmospheric layers, are given in Chapter vi. The results are based on numerous pilot balloon observations. In the following chapter special reference is made to the theory of the refraction of the isobars in coastal situations. In the last two chapters are summarised the main facts in regard to the relation of pressure gradients to wind in cyclones, on which Sir Napier Shaw is the leading authority. Many of the results are derived from special investigations, carried out in or based on data from the principal British observatories.

The book is specially suited for advanced students of physics, although parts of it may be followed by those with only an elementary knowledge of the subject. The completion of the work will be awaited with great interest, as a comprehensive and up-to-date text-book on meteorology is much required.

## EDUCATIONAL.

*Meteorology for All.* By D. W. Horner. London: Witherby and Co., 1919. *Price* 6*s. net.*

Mr. Horner's book should prove useful to those about to take up the study of the weather. It contains a good deal of information not usually discussed in elementary treatises on the subject. In addition to a general description of all the instruments in use, chapters are given on the "new units," on phenology, on meteorology as applied to aviation, and on the making of instruments. There are seven full-page plates and seventy-six illustrations in the text, which enable the descriptions of apparatus and phenomena to be easily followed. More might have been said about the important part played by dust in Nature, and no mention is made of Dr. Aitken's classical investigations. Mr. Carle Salter, Superintendent of the British Rainfall Organization, contributes an introduction.

*The "Leading" Mapping Book.* Designed by W. Lucas, B.Sc., St. Michael's Council School, Liverpool. London: Herbert Russell. *Price* 6*d.*

This is a simple and ingenious school note-book, intended to be used for the detailed study of a country or region. It contains a series of sheets of stout paper for notes, diagrams, sketches, etc., to which are attached tracing sheets for maps. The outline of the area which is being studied can be traced direct from the atlas on the last of these sheets, and copied from this on the other sheets. The various outlines can then be filled in to form orographical, rainfall, population maps, and so forth. Comparison of any two types of map is easy, and superimposition, *e.g.* of an orographical upon a population map, is also possible. When filled in the book should thus contain a fairly complete summary of the geography of the area studied, while the labour of drawing a number of outlines is minimised.

*Philip's Art Pictures for Schools.* London: Geo. Philip and Son, 1920. *Price* 4*s. each in sheet form.*

We have received some specimen copies of this new series of pictures. Both the drawing and the colouring, in our opinion, leave a good deal to be desired, but the difficulties at present are doubtless considerable.

THE SCOTTISH

GEOGRAPHICAL

MAGAZINE.

# NOTES ON THE CAMEROON PROVINCE (WITH SPECIAL REFERENCE TO THE BAMENDA DIVISION).

*(With Route Map and Illustrations.)*

By Captain L. W. G. Malcolm.

## I. Geographical

The Cameroons generally may be considered to fall into five distinct areas, which are :—

(*a*) The Coastal and Riparian Area.
(*b*) The Forest or Bush-belt Area.
(*c*) The Plateau (Grassland) Area.
(*d*) The Mountain Area.
(*e*) The Lake Chad Basin Area.

(*a*) The first area north of the Cameroon Mountain from Rio del Rey consists of an alluvium through which there is an extensive anastomosing system of waterways, which sometimes form a series of lagoons. This particular type of coast is developed as far north as the Gold Coast. The predominant feature about its floral characters is the great belt of mangrove trees which grow right down to the water's edge. This enormous delta region is split by the Cameroon Mountain, and is again developed more or less to the south-east. The actual coastal area of the Cameroon Province consists largely of a country rock of igneous origin, and the detrital material furnishes the soil on which the tropical flora flourishes.

(*b*) Immediately behind this coastal fringe, inland, is a development leading to the Forest or Bush-belt Area. The country itself is un-

dulating with isolated mountains, notably Rumpi, at the back of Rio del Rey, which is 1500 m. high. Here and there the ground rises, and there the flora is somewhat sparse compared with the dense forest vegetation.

As one approaches the edge of the grassland plateau there are innumerable waterways, well seen on the journey from Tali to Fumbi. These particular towns are in the bush-belt close to the base of the escarpment of the plateau.

(*c*) The edge of the escarpment of this plateau is of semi-circular shape with the horns away from the coast. It stretches from the Sanaga River in the French sphere of occupation as far as Bascho to the west. For a while the country is undulating grassland or savannah. What trees there are grow along the banks of streams and in isolated patches elsewhere. A certain amount of "small timber bush" or scrub grows on the hillsides. As one moves to the north-west the character of the country changes to that of high mountains until the Kumbo highland area is reached. Isolated massifs occur here and there, some being close to the Bamenda station. The northern boundary of the present Bamenda Division extends nearly to the edge of the escarpment of the plateau. After the Kumbo and Gashaka Highlands there is a certain amount of flat ground as far as the Kontscha Highlands, Alantika and Mandara Mountains.

(*d*) In the valleys there is a splendid grass country very suitable for agriculture or pasturage.

(*e*) The Lake Chad Basin Area is of alluvial origin and lies north of the Mandara Mountains. There are a few isolated massifs not far away, but otherwise the country is fairly flat in character.

There are three main river systems which drain the Cameroon Province. The first feeds the Sanaga River to the east, the second the Benué River, a tributary of the Niger River, to the north-west, and the third is the Lake Chad system to the north-east. The feeders to the main streams are innumerable and practically serve the whole province.

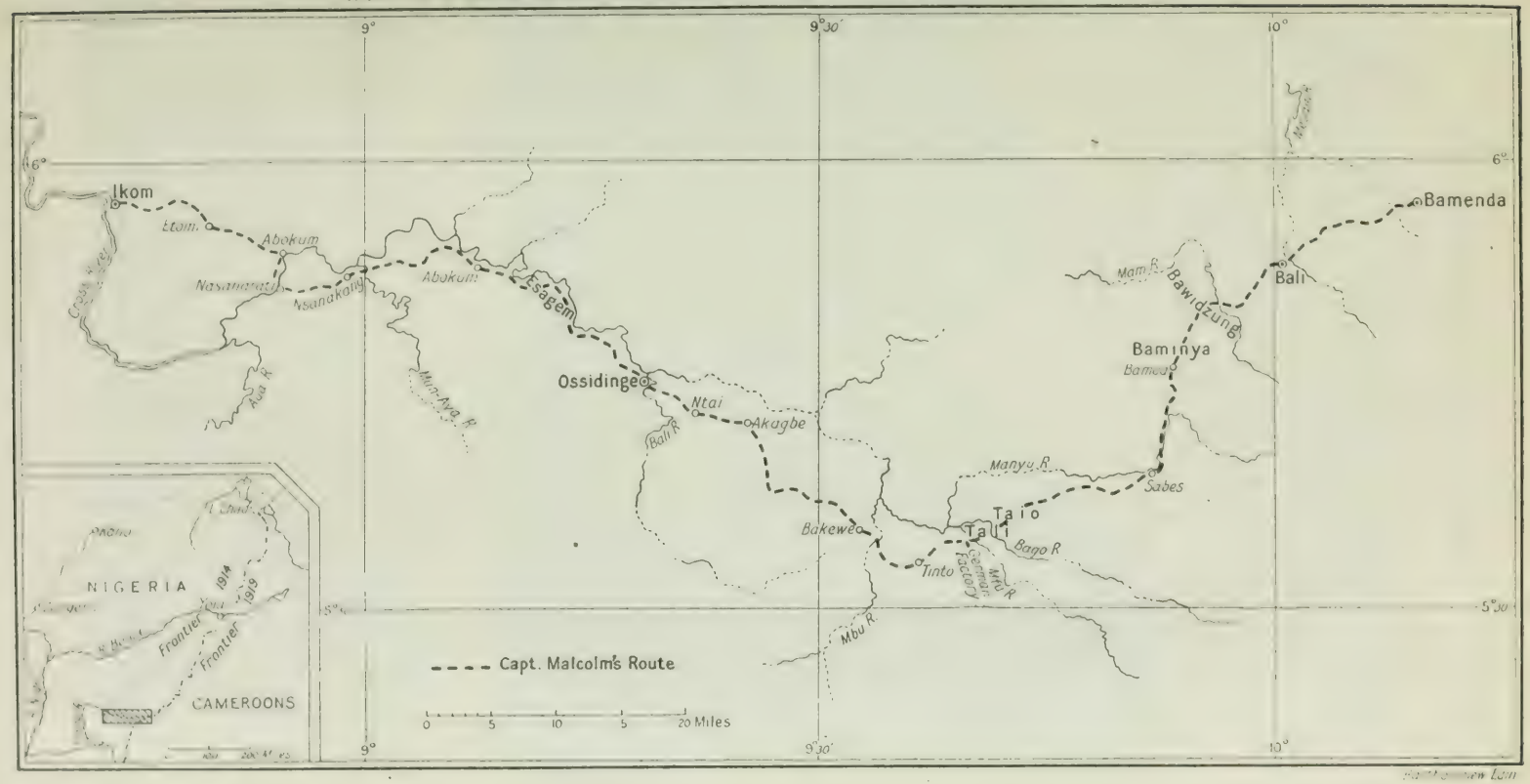
In the bush-belt there is to be found the usual type of African tropical flora. The oil-palm flourishes throughout, and nearer the coast rubber and cocoa are fairly plentiful. Bananas, plantains, yams, paw-paws, sugar-cane are also well developed. In the Grassland Area farm-produce such as maize and guinea-corn is grown very extensively. Ground nuts, yams, koko-yams, kola nuts, and millet are grown, but to a lesser extent. Rice is cultivated more on the upper reaches of the Benué River, the Lake Chad Basin and in certain areas near the coast.

## II. Administration.

Under the former German administration the Cameroons colony was governed by officers either of the civil or military departments.

Under the civil administration there were six divisions, viz. Ossidinge, Victoria, Duala, Edea, Jaunde, and Kribi; six sub-districts at Buea, Johann-Albrechtshöhe, Bare, Jabassi, Lornie, and Molundu;

# ROUTE FROM IKOM ON CROSS RIVER TO BAMENDA, CAMEROONS



five stations at Rio del Rey, Joko, Akonolinga, N'tum and Campo; three posts at Bamum, Abong-Mbong, and Lolodorf. Under the military administration there were five districts at Banyo, Bamenda, Dschang, Ebolowa, and Dume; four posts at Mbo, Akoafim, Sang-Melima, and Kadei. In addition to doing the administrative work the officer in charge of a military district was also in command of the troops. There were also two residencies at Kusseri and Garua, with several outposts over which a European was in charge. Of the above stations Ossidinge, Victoria, Buea, Johann-Albrechtshöhe, Bamenda, Dschang, Mbo are (or were) in the British provisional sphere of occupation. For administrative purposes the Government of Nigeria considers that part of the Cameroons under its control as constituting a province under a resident who is stationed at Buea. The province is divided into a number of divisions, each being under a District Officer. Other departmental officials, including the military and medical representatives, are stationed at various headquarters. The division in which I was most interested was that of Bamenda, in the grassland plateau. There are three ways of getting to the divisional headquarters of this area. The first and most comfortable is to travel by rail to Nkongsamba in the French territory and then by short stages through Dschang to Bamenda. The second way is to trek on foot from Victoria over Tinto. This journey takes about fourteen days. The third and most generally used way is from Calabar in Southern Nigeria. For the first five days the journey is made by launch up the Cross River. The tying-up places are generally at Itu, Enwana, Arun, Obubra, and Ikom. At the last-named station one is provided with carriers by the Political Officer. From here I made my way to Ossidinge by a now disused route, and so to Bamenda. The course of the journey is shown on the accompanying sketch-map, and may be summarised as follows from my detailed route reports.

Starting from Ikom on April 3, 1917, I travelled by a good road, first through timber bush, with patches of dense forest, and then through open country to the rest-house of Etomi. This has a telegraph line, and supplies, including plantains, yams, fowls, eggs, were fairly plentiful. There were many sand-flies. The next stage, by a good road through timber bush, brought me to British Abokum, another telegraph station on the Cross River, with a rest-house. To avoid a bad track the journey was then continued downstream to Nsanarati, where the river was ferried in light canoes. After leaving Nsanarati the next day the track proved very rough, and there were many streams to cross. The night was spent in old factory buildings at the German trading centre of Nsanakang, which was the scene of a disaster to Nigerian troops in September 1914. There is no village here, and no supplies were available. Next day, after crossing the Munaya Creek, and passing the deserted post of Nsanabon, the rest-house at German Abokum was reached. Here there is a good water supply, and a fair amount of food was obtained. As before the country was light timber bush, and between Abokum and Esagem and the latter and Ossidinge streams were numerous, and were crossed by hammock bridges (see

illustration). Ossidinge, at the junction of two rivers, was formerly the German District Headquarters, and is now the headquarters of the Division under Nigeria. The station proved extremely hot, owing to the fact that all trees had been cleared away. From Ikom to Ossidinge is about sixty-three miles, and the journey was accomplished in six days.

After spending ten days here I continued my journey to Bamenda. The Bali River was crossed by a hammock bridge, and the track then passed through a fairly well-peopled country, with timber bush mingled

Hammock Bridge in the Bush-belt.
*(Photograph by the late G. S. Podevin.)*

with palm trees, to Mbijong (south of Akagbe), where there is a population of about 1800. Next day the very wide Mbu River (about 180 feet) was crossed by a hammock bridge, and a fairly level country with farms and few streams traversed before reaching the rest-house of Tinto. Tinto, which contains a telegraphic exchange, has a population of about 300. From the village the ground rises to the old barracks, and then descends steeply to the Mfu River, on the banks of which is a German factory with European quarters. There was formerly a masonry bridge here, but it was destroyed by the retreating Germans. Beyond is the long straggling village of Tali, with a population of about 2000. Next day the Bago River was crossed by a hammock bridge, the rest-house of Taio and the deserted village of Ankwo passed, the Mpa River

crossed and the large village of Sabes reached. On the following march streams were found to be numerous, and the bush thinned out, Fumbi, a small hamlet with a rest-house, being the last village in the bush country. At Babessong the ascent of the plateau was begun, the gradients being steep. Bamoa is a small village placed at the edge of the escarpment, with a magnificent view over the bush country. Here the grasslands definitely begin, trees beyond being chiefly found on the banks of the streams. Round Baminya, Babinsi, and Bawidzung, however, there is small timber. Bali is a very large town with a rest-

German Fort at Bamenda.
(*Photograph by the late G. S. Podevin.*)

house in the former mission station, which has a European garden. The town is the headquarters of the Bali tribe. From here Bamenda is reached after passing through an undulating, grassy country. It is ninety-five miles from Ossidinge, and the journey took seven days.

It is possible to ride a bicycle over stretches of the graded roads, but otherwise the trek must be made on foot through the bush-belt. It is not advisable to take horses owing to the prevalence of the tse-tse fly, more especially near the streams.

Bamenda station does not differ very much from any of the other former German stations. The main building is the fort with quarters for Europeans and natives (see illustration). Near by are the other

quarters and district offices. At Banyo the fort encloses all the quarters, but at Bamenda it was used by the native troops only. A certain amount of European building material was used in the construction of the station buildings, but due advantage has been taken of local material. Bricks and timber were prepared on the spot. A number of native artisans were trained in the German workshops, and some excellent work has been turned out.

### III. Ethnography.

At the natural boundary between the bush-belt and grassland plateau there is also a line of demarcation between the inhabitants and the cultures of these two areas. With the oscillations of the racial movements one way and another, there has arisen the quasi-Bantu people. In the bush-belt the characteristics of the inhabitants, both physical and cultural, do not vary amongst themselves to any great extent. In the dense forest there may be marked differences in certain tribes, but taking them all round the variations of the Bantus and their cultures as a whole are not too pronounced. For example, practically the same type of hut (gable-roof) is found at Calabar on the coast, and at Fumbi on the extreme edge of the bush-belt. In one form or another the weapons and musical instruments are, in principle, practically of one type. Once on the plateau, however, there is a distinct change. The people, both physically and culturally, differ from those of the bush-belt. There have been several minor migrations mainly from the north-east. One of the forces which caused a migratory movement was the establishment of Fulani rule in Adamawa. This area was controlled by the Emir of Yola, who had founded over forty small states each in charge of a lamido who paid him tribute. One of the tribes near Tschamba split, and a part migrated to the south-west, eventually settling down near Bamenda. These were the Balis, who intruded a Sudanese culture into the country. Several small offshoots settled in various near-by places, with the result that there is a gradual assimilation of the two cultures one with the other. The main influence so far has been on the language. The intruders spoke Mubāko, and the local people Munghāka. The splitting of the two languages is still in progress, but it is now called Munghāka by the Mubāko-speaking Balis. To a certain extent this tribe has retained its distinctive dress and weapons. Owing to the frequent application of cam-wood powder and palm-oil to their bodies their clothing has a general deep red colour. There have been several local migrations, but these have not affected the other peoples so much.

The method of native administration is through the chiefs, who are also the priests. They have supreme control of their people, being only subject to the administration. There are two kinds of chiefs, viz. paramount chiefs with one or more sub-chiefs, or single chiefs in charge of their own town. In the Bagam area there are four sub-chiefs each in charge of a sub-town under the paramount chief. They receive any instructions from the administration through him and not direct. Every effort is made to uphold his authority, as it is the Government's desire

to keep intact such native institutions as will assist and not hinder development. The internal organisation of the town is well defined, and the chief is in communication with all the compounds by means of an organised messenger service.

The religion of the hinterland people is very difficult to understand. They believe in a deity, and in some instances supplicate the sun and

The Chief of Bali.

(*Photographer unknown.*)

moon for assistance. The spirits of the departed Bagam people are propitiated by gifts of food and palm-wine. There was a series of ceremonies with this object which lasted from July until December in 1917, and an account of these will be published shortly.

Each man of the grassland area carries one or more spears in his hand. In a sheath suspended from one of his shoulders he carries a sword knife. This feature of being armed is noticed at once after the ascent from the bush-belt, where I saw a spear but seldom. The

difference in the character of the habitations is also very marked. Owing to the absence of any big timber the branches of the raphia palm are used not only for building purposes but for furniture. In structure the huts are square in elevation, the walls are about nine to twelve feet high; the roof is of thick grass thatch. After the roof has been fixed into position the walls are plastered over with mud, and when dry they are rubbed over with a thin wash.

In physical appearance the men are well-built, and in many cases are of excellent physique. It is an extraordinary thing that whenever men have been recruited for the Nigeria Regiment they always turn out to be first-class shots. This has been marked over and over again. There is a certain percentage of flat-footedness, and a number of would-be recruits had to be rejected on this account.

The main occupation in the Bamenda Division is the production of crops. Maize, guinea-corn, yams, koko-yams, and sugar-cane grow freely, and they are all cultivated with great success by the natives. In the Bagam area each compound works two farms, one near the town, and another at some distance. A man can take up as much land as he wishes, as there is a great area of virgin soil and the population is not very large. Farms may be worked in rotation, or else new ground may be broken. The grass after being cut is burnt, and made into heaps at the beginning of the season. The ashes are worked into the beds, which are hoed by women into hillocks in which maize, ground nuts, and even koko-yams are sown at the same time. The maize ripens first, and then the ground nuts, and they are harvested in turn.

Trade in articles made from locally prepared iron, such as spear-heads, knives, and ornaments, is carried on to a certain extent. At Bagam there is a brassfounder whose speciality is the manufacture of brass pipes. Other industries are mat and chair making, iron smelting and grass-bag weaving, and pottery production.

I was informed that formerly in the Bamenda Division children were sold to Hausa traders, who took them either up to Yola or above Amar on the Benué River in North Nigeria. They were taken in canoes to the Nupé country and resold. A sharp lookout is kept for this sort of thing, and in some canoes examined at Amar and Ibi children have been discovered under matting at the bottom of the canoe. The late German Administration passed ordinances against slavery generally, and I was told punished severely any offenders against these laws.

There is a system of mild slavery in force throughout the Bagam area, but it is not considered wrong, as the men and women are looked after by their own country people and not by strangers. In fact, to be a slave means that one's master has to be responsible for one's welfare. In some cases the "slave" enters the service of a chief or compound holder quite voluntarily.

An excellent map of the Cameroons by Moisel is published by Dietrich Reimer, Berlin, 1912-13, which shows all the places referred to in this paper.

# THE PLACE-NAMES OF CANADA.[1]

By R. Douglas, M.A. (Edin.), Secretary Geographic Board of Canada.

The place-names of a young country, such as Canada, form a book which he who runs may read. They will be an asset almost as valuable as an additional natural resource if they give information about her natural resources, about the modes of thought and feeling of her people, about the pioneers who shaped her destiny, and if they reveal all that is best in her national life.

I propose to discuss the principles which underlie such a system of nomenclature. To begin with, the privilege of naming features in any region of the earth is exercised primarily by the inhabitants of that region. Canadians, and Canadians only, have the right to name their own mountains and rivers; and as the residents of the particular locality in which a feature is situated will be the persons who use its name most, it must be acceptable to them if it is to prevail. When the region is unsettled the naming privilege falls to others, such as surveyors, who require a designation for the feature. In many cases an existing name is unsatisfactory. Here again surveyors may be called on to supply an alternative. They may hesitate to do so because of the inconvenience likely to be caused to the big-game hunters and tourists of a day if they replace such names as Clear lake, Buffalo lake and Trout lake by others that are not duplicated. Such inconvenience would arise from the native guides' ignorance of the new names. But the difficulty can be overcome by the circulation of up-to-date maps, and after all, the interests of permanent settlers, present or future, merit first consideration.

Sometimes a feature has more than one name. One of these may be Indian, another may be found only on some map. In such cases, local usage should govern, unless a name is objectionable. If local usage is not a factor, that name which is most appropriate and euphonious should be adopted, and, other things being equal, that which has priority of publication in some standard work or map.

Existing names are objectionable—(*a*) when they are duplicated, especially within the same province; (*b*) when they are difficult to pronounce; (*c*) when they suggest unpleasant ideas; (*d*) in the case of Indian names, when they are of excessive length and cannot be curtailed.

It is not necessary that every unnamed feature in a region should be named. The richly varied place-names of England reflect the thoughts of many generations. The names of the great natural features,

[1] A paper read in Ottawa, February 4, 1920, at the Annual Meeting of the Association of Dominion Land Surveyors.

In sending these interesting notes on the place-names of Canada, Mr. Douglas adds that Canada is striving to incorporate her history in her place-names. Thus the Thousand Islands in the St. Lawrence bear the names of gunboats which sailed these waters in the war of 1812-14; townships in Quebec are named after officers in Montcalm's regiments; mountain peaks in the Rockies are being given the names of eminent Canadian fighting men in the late war and of battles in which Canadians fought.—Ed. *S.G.M.*

the large rivers in particular, given by the pioneers remain to-day. The lesser feature names that survive are those given by later races as the social order developed. From this we conclude that the first explorer of a region should not name more than the larger un-named lakes and rivers, and that if features are left to be gradually named as the region is settled, the result will be more satisfactory than if all names are given at one time and by one person.

It is sometimes more important that an objectionable name should be removed early than that a still un-named feature should receive a name. For instance, an explorer finds the name Long Lake, and defers changing it. The Post Office Department, or one of the Railway Companies, or a Trading Company, sees the name on the map and adopts it for a post office or railway station or trading post, any of which may be the possible nucleus of a city. Instead of one feature with an objectionable name, there are now two, making a change doubly difficult. The explorer should not defer changing a name because a lake may dry up soon. It may have given its name to a town before that happens. For instance, Stewart lake Tp. 17-5-P., Manitoba, has dried up, but Stewart lake post office remains.

Unsuitable names may be replaced by, or new names selected from, two kinds of names: (*a*) impersonal descriptive ones, and (*b*) personal ones. Both are found in English, and, for that matter, in Canadian native names. The first type may be topographical and describe the natural features of the region. Thames (probably) means either the "quiet" or "wide" river, the Humber is the "cumber" or "confluence' river, corresponding to our Mattawa, and the Ouse or "wet mud" is something like our Winnipeg river. Again, they may be indicative of the natural products of the place, as, for example, Hay river, Cobalt; or they may indicate animals which resort to the place as in Whitefish lake, Red Deer river. They may indicate position or direction from a place previously known as Abitibi, or half-way lake, or they may be historical, preserving the memory of some important event as in Battle river, so called from the number of battles on its banks; or Peace river, so called from a point on it where the Indians were persuaded by the traders to terminate their wars and feuds. The more common names of these classes have been used up, but many euphonious scientific and technical words expressing finer shades of meaning are available.

There is room for this type of name when it goes into detail or particularises. For instance, instead of naming a place Hay lake or Bear lake or Bird lake, the particular kind of hay, bear, or bird may be stated. A great number of compound words, embodying commoner names, have also been used. Besides Beaver lakes and creeks and hills, we have Beaverbank lake, Beaverdam creek, Beaverfoot river, The Beaverhead, Beaverhill lake, Beaverhouse creek, Beaverbrook town, and Beaverton village. All simple names, however, have not been so hard worked as Beaver, and good names of this sort must yet be quite plentiful.

Impersonal descriptive names may be used to replace unsuitably named large or small features.

In the case of personal names, the importance of the person or event to be commemorated should bear some proportion to the size and importance of the feature. As a rule the names of national heroes or events should not be applied to small features, nor those of local heroes and events to large ones.

While descriptive names are often desirable for variety, yet the selection of a distinctive one may be more difficult than of a personal name. The Indian named places after noted warriors, but it seems to have been left for the Englishman especially to commemorate himself or his family by a name. A great many English village and town names when interpreted, are found to be merely this prince's or that thane's town, being named after the founder or former owner. With this may be contrasted the French-Canadian custom, seen in Quebec, of naming places after patron saints.

The best personal names are the historical ones, with a local or national significance, or both, say those of early traders, travellers, or explorers, or of some great event or personage of the time in Canadian history. A good example of a historical name is Cardinal river, the north branch of Brazeau river, which commemorates Jacques Cardinal, a noted figure in the fur trade, whose grave is on the bank of the river in Sect. 13, Tp. 45-21-5. Cardinal is referred to by travellers through Athabaska pass, in 1820-30, as an old man living near Henry house, in charge of the horses used by the fur trade brigades. The suggestion for this name came from Mr. D. B. Dowling, of the Geological Survey, who saw the grave and made a note of its position.

It is sometimes said the names of living people should not be applied, but there is as little reason for withholding the name of a living person from a natural feature as for withholding praise from him till he is dead.

The "ignominy of a shifting white nomenclature," as W. B. Cabot calls it, must be avoided. Sometimes, for example, there is a choice of two local names, one descriptive, and one personal. The personal one may be more commonly in use at the moment, but is not to be preferred on this account. Cabot says of the Labrador Indian river name "Assiwaban," which he has rescued from obscurity: "The river is best known as Frank's brook, from the name of a one-time resident near its mouth. These personal names given to bays and rivers are more or less subject to change, accordingly as the settlers change and succeed one another. One year the river may be Smith's, another year Jones's, and in due time, perhaps, Robinson's."

The system of naming branches of rivers South branch, North branch, East fork, etc., is undesirable; individual names are preferable. The names of main streams should be carried to the headwaters.

When names have been changed or corrupted, if the change is not too firmly established by local usage or otherwise, the original forms should be restored. A new name, of which the meaning is not known, should not be given, and no new name should be given without setting down a note of its meaning The use of manufactured Indian names is not recommended. Why revert to a dead language when there are two

living ones, English and French, from which names may be selected! New names should not be nicknames or shortened names of persons, or corrupted names, such as Sipra lake for French Cyprès.

Names whose pronunciation may be misunderstood from their spelling, or which may readily be confused with a more common word, are objectionable. The same name may be applied to more than one related feature, except that a lake and a stream in the same district should not bear the same name unless the lake forms the source of the stream, or where the stream does not rise in a lake, and the lake for which the name is proposed is situated on the main stream.

In districts where there are settlers of foreign origin, simple and euphonious names in the old language of the settlers are not objectionable, but this hardly warrants what happened recently, the giving of the Spanish name Rio Grande to a post office in the Grande prairie region from the mere resemblance of the adjective and the fact that there is a river (Red-willow) half a mile distant.

French place-names recalling the presence of the early French voyageurs and traders should be retained as a general rule.

Information about names is very easily lost if not noted. For instance, Weyburn city, Saskatchewan, was named by the late Sir William Whyte of the Canadian Pacific Railway in 1891 or 1892, but the meaning of the name is unknown. Some published statements in regard to names are entirely erroneous, and surveyors have done and can do good work in gathering or checking information, which often involves much important history. West and south-west of Moosejaw, for instance, are two large alkaline lakes which have appeared on maps since 1865 as lakes Chaplin and Johnston, but only the other day was it definitely ascertained whom the lakes were named after, and that the spelling Johnston was a mistake. The hint of the origin came from Mr. J. N. Wallace, D.L.S., Calgary. Subsequent inquiries brought a letter from Viscount Chaplin stating that the lakes were named in 1861 by Dr. (afterward Sir) John Rae, who in that year accompanied the writer and Sir Frederick John William Johnstone, Bart. (1841-1913), then Oxford undergraduates, on a hunting expedition to the prairies from England. Mount Rundle, Alberta, commemorates an early Methodist missionary to the North-west. To a geologist we are indebted for the following interesting information about Rundle, which he copied into his note-book from an inscription in some museum in Banff: "Rev. Robert Terrill Rundle reached Edmonton 18 September 1840; Rocky mountain house, 22 February 1841, camped at foot of Cascade mountain 4 or 5 weeks, August 1841, returned to England 1848." The names of smaller features are connected with equally interesting information. To Mr. G. H. Blanchet, D.L.S., is due the suggestion that the Parle Pas rapids, Peace river, are so called, not because of their silence (they are not silent), but because they are so dangerous that one must shoot them in silence with every sense alert.

# A CONTRAST IN CHALK-LANDS.

By M. Aurousseau, B.Sc.,

Lecturer in Geology, University of Western Australia.

It was the good fortune of the Australian troops, during the course of the war, to become very familiar with the great English chalk expanse of Salisbury Plain, in the military depots of which they were received and trained, while subsequent active service made them even more familiar with the greater expanses of the chalks of north-eastern France. In this way the writer has been enabled to gain more than a passing acquaintance with these two regions, and, coming from a new land, has been forcibly struck with many things which a European may dismiss as trivial and ordinary, through his life-long acquaintance with them.

The two regions are remarkably alike in their physiography. The geological basis of each is the Senonian chalk, the lower stages of the Cretaceous only appearing in certain valleys. The French region has the superficial addition of scattered patches of "limon," which is of great economic importance, but otherwise both lands are essentially alike, each being a rolling expanse of chalk downs with a characteristic convexity in the hill forms, traversed by mature streams, whose broad and shallow valleys are well filled with rich alluvium. The general elevation of Salisbury Plain is several hundred feet greater than that of the French region, but the climate in both countries is very much the same. Likewise, similar conditions of surface and ground-water supplies are found, the latter being difficult to tap, except on low sites or along joints and faults in the chalk.

Though so much alike in physiography, from the point of view of development and human geography few regions can exhibit a greater contrast. Both have been under human occupation since the earliest times and have a very complete archæological record, but their development by man has been along divergent lines. The reason for this is probably to be found in the state of each region at the time of its primitive occupation by man. Salisbury Plain was then an open island in a sea of forest, and offered an attractive prospect for settlement to the pastoral element of the population, whereas the much more extensive chalks of north-eastern France formed part of the forested "zone of effort" of temperate Europe, and owing to the absence of better land would naturally enforce agriculture on the population. This difference in early occupation has been maintained throughout the ages, with the resultant contrast which is now to be observed.

The population of Salisbury Plain is arranged in a number of villages of ancient origin, which are confined to the river valleys and other low sites. The significance of this fact has been dealt with by the writer in another paper in course of publication elsewhere. Pastoralism does not enforce an even distribution of villages over the whole area. The sheep are folded at night on the high downs, frequently far from home. The

small amount of necessary cultivation and dairying is carried on in the valleys, the floors of which have in many places been converted into water-meadows. Prior to the Industrial Revolution, a vigorous weaving industry was carried on in the valleys, the Plain producing large quantities of wool from a locally-evolved breed of sheep, which has now become extinct. On the high downs the difficulty of watering stock was overcome by the construction of dew ponds, and the age-long browsing of myriads of sheep had its effect on the herbage and thin soil, producing the rich and springy turf which is so characteristic of the Plain. Woods, more of the nature of game preserves, are confined to the higher ridges in general, except for the wooded parks of the manor-houses in the valleys. Since the Industrial Revolution, however, a change has been slowly working. The weaving has disappeared, and the turf of the downs is being gradually broken by the plough, pastoralism giving way slightly to agriculture. The general aspect of the Plain remains unaltered, but it is passing from an attractive and prosperous area into a decadent and depopulated one. Ruined and unoccupied cottages are now to be seen in many of the villages. The open expanses of turf have, however, considerably extended the use of the Plain as a military training ground since the advent of aircraft.

The chalks of north-eastern France, especially in the Departments of Somme, Pas de Calais, and Seine Inférieure, owing to the agricultural development of the population, are characterised by an even distribution of villages, sited at water points, but clinging to low ground wherever it is possible to do so. High ground has frequently to be occupied, especially where the chalk expands into small plateaux. The whole area is cultivated and wooded systematically. Cereals are grown on the chalk, and beetroot on the "limon," which renders possible the only rural industries which are carried on. Beet-sugar factories exist at many points, and small brickworks are occasionally to be seen. The small number of necessary animals are personally tended during the day, in the neighbourhood of the villages, and are stabled in the villages at night. Dew ponds are unknown, and water for the stock is taken into the fields in casks. Each village has its communal pond, which is fed by the run-off from the roofs and streets, at which the farm animals are watered in the morning and evening. Water-meadows are not found in the valleys, which are cultivated only in the vicinity of cities, for market-garden purposes. On the other hand, the valleys are frequently a source of peat, while the larger streams have all been canalised, and the smaller ones are often used as a source of power for electric lighting. Woods are a controlled economic asset, soft timbers, such as poplar, being grown along the river banks, while hard woods, such as oak and ash, are found in small young forests on the higher ground. Finally, this region is flourishing. Though the total population of the Department of the Somme has declined somewhat of recent years, probably owing to a withdrawal to the industrial districts of the Department of Nord, the rural population is on the increase.

Turning from the adaptive aspect of human occupation to the actual modification of the regions by man, the contrast, as revealed by the

present scenery, is still more marked. An average view of Salisbury Plain shows a free and untrammelled development of nature, with surprisingly little sign of human occupation. The green rounded downs sweep away, with an occasional copse, or glimpse of a valley, to the high forested ridges, where the trees are thick, and full and rounded in form, and have abundant undergrowth. The streams follow their natural courses, and are but little modified by weirs and watermills. Early archæological monuments are fairly plentiful, but traces of manorial agriculture, in the form of linchets, are somewhat rare, as would be expected in a pastoral area. Roads are not numerous, the main roads and railways being confined to the valleys. Communication across the downs is maintained by a few poor roads and tracks.

In the French chalk districts there is considerable restraint of nature, the scenery having elements of formality, which are less pronounced, however, than in more fertile parts of France. The woods are regular in plan, and trees in the valleys and along the roads are spaced in regular rows. They exhibit a trimmed monotony of form owing to the seasonal lopping of the lower boughs for firewood. Undergrowth is scanty, being systematically removed for the same purpose. The streams follow artificially confined courses, the smaller ones being often interrupted by watermills, weirs, and locks. Early human relics are not abundant, but traces of manorial agriculture, in the form of "remblais" (linchets), and raised and sunken roads are of common occurrence. There is a complicated network of good roads, the main roads being often straight, and railways are not confined entirely to the valleys.

The highest phase of the contrast is to be found in the intellectual expressions of the two regions, such as architecture. The cottages of the Plain are neat structures of stone and thatch. They are sometimes built of chalk, but a chequer of harder stone and flint is more in favour. They frequently have pretty gardens with a wealth of bright, common flowers, and straggle out along the roadways. The village churches are solidly built, of stone brought from a distance, the chalk being despised as a building stone. They have considerable architectural merit, and in general have square towers, and are surrounded by well-tended, grassy churchyards. The greatest building in the district, Salisbury Cathedral, is a gem of elegant simplicity, and is built of stone from the Nadder Valley.

The thatched brick cottages of the French region, closely packed amongst the clay and timber barns of the compact villages, are not particularly beautiful, and have, instead of the flower beds of the Plain, a small kitchen-garden and a few fruit trees. The chalk-built village churches generally have a spire, and stand in the public place, the cemeteries being always at some distance from the villages. Chalk is the only building stone available, and has been put to excellent use in some of the larger buildings. The great cathedral at Amiens, built of chalk from subterranean quarries, is far ahead of Salisbury in its decorative merit, though the two are contemporaneous structures. Indeed, one cannot help thinking that the freedom of the chalk as a medium of

artistic expression was the cause of the early rise and extravagant development of the French styles of Gothic in this region.

It is not proposed to carry the contrast of the two regions into a discussion of the characters of the peasants of north-eastern France and south Wiltshire, which would doubtless be of great interest. In conclusion, it may be remarked that the present movement in England for the cultivation of chalk lands may receive much help and guidance from a careful study of the French methods in the regions here considered.

---

## TRAVEL MEMORIES.

*(With Illustrations.)*

By Lieut.-Colonel A. C. Yate, F.R.G.S., F.R.Hist.Soc.

Six months and more have elapsed since I laid down my pen, having pursued my "Memories" from Bushire to Gulahek, the summer residence of the British Legation in Persia. In those six months much has happened. I left the Shah of Persia visiting Edinburgh under the guidance of a talented Afghan student, while to-day Mesopotamia is bestirring itself to welcome that same Shah to Baghdad on his return journey to his own capital. We have been watching His Majesty improving himself in Europe, while his Foreign Minister flitted between Paris and London and set forth Persia's policy for the enlightenment of the Persia Society; and while both Majesty and Minister thus passed their time thousands of miles from the capital and country which it is their first duty to defend, we watched Bolshevism steadily and by no means stealthily sapping its way back to that position which nearly a century ago the treaty of Turkomanchai laid down between the territories of the Czar and the Shah.

My own opinion is that the Persians had better be left to stir and nerve themselves to fight their own battles. Stress and suffering may recreate in them that pristine spirit of derring-do which the pages of Xenophon and Firdausi have taught us to regard as the birthright and inheritance of the Persian. *The Times* has told us that Persia possesses the South Persia Rifles, 6000 strong, under British officers; the Cossack Division, over 8000 strong, under Russian officers; and the Swedish Gendarmerie, with a total strength of 8400 solely under the orders and command of the Persian Government.[1] The conduct of the Swedish Gendarmerie during the war is of bad omen, and, if a "Wireless Press" report be true, General Lionel Dunsterville's old foe on the Kazvin-Resht

[1] This, as all who know Persia will at once note, ignores the backbone of Persia's military power, the tribal levies. There is excellent material in Persia for an army, given strict discipline, regular pay, and good officers. On this point it will be found that British students of this question unanimously agree. *Vide* Watson's *History of Persia*, 1800-1858, p. 24. The Anglo-Persian Military Commission promulgated its scheme for the new Persian Army in April last (vide *Times* of May 27, 1920). The remarks made in it on "The Cossack Division" justify grave disquietude, a disquietude confirmed by the Tabriz report. As for the Swedish Gendarmerie, its steadfastness in the service of the Shah's Government cannot be relied on.

route, Kūchak Khan Jangali, is once more on the move, and "4800 Persian Cossacks are reported from Tabriz to have gone over to his side." If the readers of the *Scottish Geographical Magazine* would like to read a study—no unfavourable one—of Kūchak Khan's character and capacity, let me invite them to read pp. 72 and 73 of Major Donohoe's most interesting and readable narrative of the "Dunsterforce" adventures, or, if they choose, let them turn to General Dunsterville's own graphic story.

Before I turn back to my old diary of 1881, which describes this country between Teheran and Baku, let me refer to some of the letters which I have recently received from those who best know this country and its policies and peoples. One thing seems clear, and that is, that these heterogeneous races will have in the main to fight out their own salvation, if indeed the issue be salvation. To be brief, an ominous

Fig. 1.—Artillery Square, Teheran, 1881.

uncertainty broods over the whole future of the Near and Middle East, and my own feeling is that, if other Powers of the Entente find that they have bitten off more than they can chew, it is not for Britain to offer to masticate it for them. We have our own sphere, and grave indeed is the responsibility which it imposes upon us. To those who have followed the course of events during and since the war, merely to mention India, Egypt, Afghanistan, Persia, Palestine, Mesopotamia, Kurdistan, and Armenia suffices to outline the gravity of our own position.

Lord Curzon (*Persia*, vol. i. p. 300 *n.*) says:—"Very nearly every foreign visitor to Persia has stayed in the capital and has described his stay." He himself gives, in the space of 50 pages, what is probably the best existing description of the capital of the Kājār Shahs. One scene I find in my own diary which, as far as I am aware, does not figure in the narratives of other travellers. I give it therefore:—

"19*th June* 1881.—The day after we reached Gulahek we started soon after daybreak for a picnic amid the Elburz Mountains. Our party

consisted of all the youthful English society in Teheran, viz. four or five members of the Legation, Captain Wells, R.E., and ourselves. We rode some 5 or 6 miles along the lower slopes of the Elburz to Paskaleh, until the road became almost impassable for horses (one or two of the party, however, rode up all the way), and then dismounting we clambered up several thousand feet to the waterfall where we were to picnic and spend the day. The scenery amid the Elburz ravines was wildly picturesque, a blend of grand precipices, wooded gullies, bubbling streams, sparkling cascades, and snow-capped heights. The morning air at the elevation (8000 to 9000 feet) which we had reached was delightfully cool and invigorating. We passed several hamlets nestling in these ravines amid groves of poplars and of cherry, walnut, and other fruit trees. Everywhere streams of water dashed downward with sparkling speed toward the plain. At last we reached a picturesque fall of water, leaping in a succession of cascades from rock to rock—the longest leap approaching 100 feet. After our fatiguing climb we eagerly stripped and essayed to bathe in the pool at the foot of the fall, but we found the water icy-cold, and the disturbance of the air caused by the fall of a vast body of water blew on our naked bodies an icy blast of spray that chilled us to the marrow and drove us out of the water more quickly almost than we entered it. Still this chilly douche refreshed us, and, dressing, we attacked our breakfast with the zest engendered by hard exercise. After the meal we reclined lazily under the shade of the trees, smoking our pipes or cigars, and, when weary of laziness, clambered up along the edge of the fall and had a fine view over the plain of Teheran. About 5 P.M. we started homeward, trudging on foot to Paskaleh, where we remounted, and reached Gulahek about 7 o'clock. We thoroughly enjoyed a plunge in the Legation tank, and then went off to dress for dinner. This most enjoyable day necessitated our absence from a review held by the Shah of his regular troops, commanded by Austrian and Russian officers. We thus missed seeing both the Shah and the flower, in point of view of efficiency and discipline, of his army. Later we made the acquaintance of several of the Austrian officers, who most courteously offered to parade a portion of the infantry and artillery for our benefit, and also invited us to dine with them at Prévost's.[1] This most kind offer and invitation we had with very sincere regret to decline. The Foreign Legations are all in one street known as the Boulevard des Ambassades.

"We dined on the evening of the 19th June at the British Legation, and met there not only all the English society but also members of the other Legations and some Austrian officers in the Shah's service. We dined in a magnificent tent strewn with beautiful carpets, in the centre of which was a tank of clear cool water.

"On the 21st June we visited M. Broglie, a French merchant in Teheran, and there saw trade in Persian antiques as it is carried on. Armour, arms, carpets, old gold, brasswork, pottery, rifles, glass utensils,

[1] At that time the one hotel in Teheran, situated close to the new British Legation, the Telegraph offices, and the Champ de Mars. Cuisine and comfort there were not conspicuous. Prevost, a Frenchman, had at one time been the Shah's confectioner.

old tiles, lacework, embroidery and Turkoman fabrics are all collected and exported to Europe. In consequence of the great demand for these articles the prices of them are now very high."[1]

SE. of the city, at a distance of nearly ten miles, may be discerned a white edifice on the slope of the hills; this is a Parsi Tower of Silence. Lord Curzon (vol. i. p. 352) says it is situated at a considerable elevation, and that its interior can be seen by climbing to a higher point of the mountain, while Mr. Benjamin, at p. 131 of his *Persia and the Persians*, gives a picture of it. I find in my Diary the following note, and give it for what it is worth. "The Guebres cannot pronounce 'sh' or 'f,' which are therefore their shibboleth, being pronounced by them as 's' and 'p.' The letters *b* and *f*, it would seem, were introduced by the Arabs, the only true Persian labial sound being 'p.' The Persian word for a horse is written indifferently asb (اسب) or asp (اسپ)."[2]

Mr. S. J. W. Benjamin, who in 1883 became the first Minister appointed to Teheran by the United States of America, and in 1885 vacated that office, says, in his *Persia and the Persians* (John Murray, 1887), p. 130, that the term "Guebre" (*i.e.* گبر=*gabr*) is a "corruption of the word *kâfeer*." Whether this assertion, from one whose knowledge of Arabic and Persian we have no means of gauging, can hold water is open to question. *Kufr* (کفر) which is the triliteral root from which *Kâfir* is developed, is certainly in so far similar to *gabr* that, if it were a mere question of etymology, we might admit that an Arab root-word had generated two epithets of essentially different application. But does not Firdausi in the *Shahnâma* apply the word *gabr* to the ancient Persians in a manner and tone entirely divested of any derogatory sense? It is thirty-five years since I read the *Shahnâma*, and I dare not myself give any opinion; but put forward the suggestion for those who may think it worth while to pursue.[3]

When I run my eye over the leaves of my diary of June 1881, and note the tarantass drive from Teheran to Kazvin, a matter of about eighteen hours, and the ride thence through all the exhilarating scenery of the Elburz range to Resht, and then turn to the pages of Dunsterville and Donohoe;[4] I at least congratulate myself on being able to read the

[1] The dealer in and purchaser of Persian curios of 1881 would contemplate with surprise and, if a seller, satisfaction the prices of to-day. In 1881 a good specimen of glassware with the gold *reflet* was worth from £5 to £10. Since then these prices must have multiplied from five to ten fold. Mr. Arthur Larcom, at that time a Secretary of Legation at Teheran, was so kind as to show me the fine collection of Persian arms, pottery, and glassware that he had made during a six years' residence. The collection shown in London about 1810 by Mr. J. R. Preece, ex-Consul-General at Ispahan, has had few rivals. As a Handbook to Persian Art, that of Colonel Murdoch-Smith, our host in 1881 at Teheran, and later Curator of the Chambers Street Museum, is sound and good.

[2] Paragraphs given in inverted commas are extracts from my diary of 1881.

[3] Professor E. G. Browne of Cambridge, whom I consulted, pronounces Mr. Benjamin's philological inspirations associating *gabr* with "kâfeer" as "impossible," and he has no recollection of the word "gabr" being used in anything but a derogatory sense.

[4] *The Adventures of Dunsterforce*, by Major-General L. C. Dunsterville, Arnold, 1920. *With the Persian Expedition*, by Major M. H. Donohoe, Arnold, 1919.

most remarkable story of adventure which these pages unfold with some knowledge of the scene of action. That knowledge so vastly enhances interest. In thirty-seven years changes of course have come over the scene. To-day a good road fit for motor and other wheeled vehicles connects Kazvin and Resht. The boisterous wind that blew from the Caspian up the Safid-rud gorge at Manjil blows still, but the high-angle bridge and the narrow, rugged, steep path skirting the sheer precipice 500 feet above the river-bed have given place to a modern bridge and a comparatively broad metalled road. Man's handiwork changes, but not nature, and of nature as I saw it on 24th June 1881 I propose to quote a description here. "At 3.15 P.M. we started from Rustamabad for Kudum. The scenery of this stage was almost perfect. At first

FIG. 2.—Bridge near Resht on the road to Kazvin. 1881.

the magnificent panorama of lofty mountains, clad from summit to base in one continuous robe of forest, and the river flowing swiftly beneath us, its broad channel strewn with thousands of tree-trunks torn from their sites by rapacious floods, formed a spectacle on which the eye seemed to dwell without satiety. A few miles from Rustamabad we entered a grand tract of forest that stretches, to the best of my belief, uninterruptedly as far as Resht! I cannot describe the exquisite pleasure I felt as I rode amid all this glorious verdure, after two years spent amid the bleak hills, barren plains, and generally arid country that characterises Afghanistan, Baluchistan, Sind, and Persia. Beeches, acacias, sycamores, fig-trees, pomegranates—all these, entwined with vines and a variety of graceful creeping plants, stood on every side. Clear rippling streams of cool water flowed across our path, the larger ones tenanted by fish. The ground was carpeted with grass and luxuriant vegetation, relieved here and there by ferns, violets, and

other woodland beauties. At every turn some familiar English tree, shrub, plant, or bird met the eye. The damp fragrance of the atmosphere had a subtle charm of its own, rife as it may have been with malaria. As we drew near Kudum, we gradually descended until we found ourselves in the midst of a low, swampy, and densely vegetated tract, swarming with mosquitoes and horse-flies, and reeking with moisture. The roads became deep in mud and water. Wood being so abundant, most of the houses, cottages, and huts were built of it, all the superior ones being set on a brick or stone foundation, to raise

FIG. 3.—Kudum, the first post-station out of Resht on the road to Kazvin and Teheran. 1881.

them above both flood-level and the perennially damp soil. On some trees mistletoe was growing and a profusion of orchids. Despite bad horses, excessive damp, and obnoxious insects the spell of the charm of all the early part of this ride has never been dispelled. At 6.45 P.M. we reached the chāpārkhāna at Kudum, and found it to be a fine commodious building, but, as usual, filthy. The following morning our skins bore testimony that nothing could refute. We were crimson from head to foot.[1] Only intense fatigue could have made us sleep through such an ordeal. Our clothes reeked with moisture, and to dry them was

[1] At the meeting of the Royal Geographical Society on 21st June 1920, I heard Major Athill, lecturing on his experiences in Abyssinia, describe his condition, after a night in an Abyssinian house, in words identical with those which I wrote down on 25th June 1881.

impossible. Such is the climate at the Caspian Sea level. The delightful climate and scenery of Rustamabad is that of an elevation several thousands of feet above the Caspian. We left Kudum at 5.40 A.M. on 25th June, and riding through a level swampy country, densely shrouded with trees, undergrowth, vines, and other creepers, and a profusion of beautiful ferns and plants, reached Resht at 9 A.M. Cultivation consisted of rice, melons, maize, and mulberries. Having breakfasted with Ziegler's agent, a Swiss, at Resht, and changed some money, we mounted fresh ponies and rode to Pir-i-Bazar, where we engaged a boat, put ourselves and baggage into it, and then were rowed down a narrow sluggish creek with banks overgrown with rush and bush, for three or four miles till we emerged into the broad lagoon that lies between Resht and Enzeli. We then hoisted a sail, and made across the lagoon to Enzeli, arriving at 6 P.M., and found that the Baku steamer had left two hours previously. Ziegler's agent, an Armenian named Carapel, put us up for the night, and the Russian mail-steamer took us off northward the next day. Bad water, moist heat, mosquitoes, and fleas were our parting experience of Persian soil."

Enzeli is situated at the ends of two spits of land which enclose and form the lagoon between the mouth of the Pir-i-Bazar creek or river and the port itself. These spits of land are separated from each other by a few hundred yards of water only, and rise but a few feet above the Caspian Sea level. In fact, in rough weather, one would imagine that the town, which is chiefly built on the westerly spit, must be drenched with spray if not flooded by the waves. On the seaward side, however, we noticed, this very force of wind and waves had constituted a line of sand-mounds that served as a barrier against its own encroachments. The Shah has at Enzeli, or had in 1881, a seaside residence, a tower of five storeys about seventy feet high, enclosed in a walled garden (see illustration). His steam yacht, which Russian courtesy allowed him to maintain on the Caspian, we saw at Baku.

The interest of Resht and Enzeli to-day centres around the remarkable achievements of "Dunsterforce," as told in the pages of Major-General Dunsterville himself and of Major M. H. Donohoe, and the recent Bolshevist descent upon Enzeli and removal thence of ships and munitions claimed as Russian property. Such a descent could only be made upon a nation incapable of self-defence, and it was as the champion of that nation, as perfidious as it is incapable of self-defence, that Dunsterville, with his handful of officers and N.C.O.'s, attacked with a cool bluff that baffled alike Persian Democrat, Russian Bolshevist, Jangalis of Gilan, and almost the Turk from Tiflis and Tabriz. In fact, if his Persian and Armenian so-called auxiliaries had had any manly pride and sense of duty and patriotic spirit in them, General Dunsterville would have held the Turk at bay and turned the Bolshevist out. The audacity of the whole proceeding holds the reader spell-bound, leaving on the mind but one regret, viz. that such courage and such resource should have been wasted on the worthless Persian and Armenian. When the news of Dunsterville's evacuation of Baku arrived, the Armenian apologist had all his work cut out for him; and now that we

have read his and Donohoe's books sympathy for the Persian there is none. I have told before the story of Persians in comparison with whom Bishop Hatto of the Mauserthurm was a philanthropist. Edmund Candler, Donohoe, and Dunsterville have all drawn for us pictures of harrowing famine scenes which the casual reader can scarce peruse without emotion, although the fellow-countrymen of the victims watched

Fig. 1. -Shah's residence at Enzeli on the Caspian. 1881.

these scenes of misery and lingering death with perfect indifference. And these are the people whom, some argue, we ought to defend. I am convinced myself the era of "buffer states" is over, and that these heterogeneous races will have to work out their own salvation, except in so far as President Wilson is successful in persuading his fellow-citizens to accept a mandate for Armenia. Amid the scenes that have been more prominently and closely before our eyes, those of "Dunsterforce" have remained in the background. What lessons the cinema

might have taught us from it, had that unerring instrument but been on the spot to immortalise scenes of which written pages give us but a faint idea! One satisfactory thing I can record, and that is, that many of the officers who have figured in the campaigns in Mesopotamia and Persia have since joined the Central Asian Society, and from them we look forward to having graphic descriptions of the life and scenes in which they have played a notable part. Among others who came across was the Reverend Dr. Wigram, for years a missionary among the Nestorian Christians, who, whatever the failure of the Persian, Armenian, Georgian, and Tartar, have well held their own against the Turk. We have but recently heard of the death of the Nestorian Patriarch, Mar Thurion, largely from the hardships which he had to endure when heroically leading the Jelu army against the Turk. It is his sister who, in 1918, won by her bravery and devotion the sobriquet of "The Nestorian Jeanne d'Arc."

In conclusion let me reproduce here Major Donohoe's picture of the leader of "Dunsterforce," Major-General L. C. Dunsterville, C.B., A.D.C.

"The original of Kipling's 'Stalky' is keen-witted, with an illimitable fund of dry racy humour. . . One of his *obiter dicta* was that every British officer in Persia should be compelled to pass a qualifying examination in *Hadji Baba*—the Oriental *Gil Bas*—for he would then know more about the Persians, their manners and customs, than could be acquired by months of travel and unaided observation. 'Stalky' had no fear of personal danger. It is related of him that at his fateful interview with the Bolshevists on the occasion of his raid on Resht he told the 'Red Committee' so many amusing stories in their own mother-tongue that many quite forgot the principal business of the evening, which was to sentence him to death." If any one would understand what, in addition to Bolshevists, Jangalis, and Persians, rendered General Dunsterville's mission to the Caspian one of difficulty, let him read Major M. H. Donohoe's *With the Persian Expedition*, pp. 62, 122, 132-3, and 138.

---

## THE "MOUNTH" PASSES OVER THE GRAMPIANS.[1]

By G. M. Fraser, Librarian, Public Library, Aberdeen.

### 7. Cairn-a'-Mounth.

"This passes from Fittircairne in the Mearns to Kincardyne of Neill one Dee, in Mar, and conteins aucht myles in mounthe."

It was an important cross-country road. Like the name of Clochnaben (properly Clach-na-Beinne), which refers primarily not to the hill but to the stone, the usual designation of Cairn-a'-Mounth is a misnomer, for the name does not signify either a road or a hill, but the

[1] Continued from p. 122.

cairn of the hill (as Clach-na-Beinne is the Stone of the Hill), and the route doubtless became known from its most prominent feature.

As the most celebrated of the passes over the Grampians the Cairn-a'-Mounth road has often been described. It is the only one of all these historical passes through the lower range of the Grampians that has continued in what may be termed full use as a cross-country road. It may be compared with Carter Fell over the Cheviots, and, although much less used than Carter Fell for wheel traffic, it is a splendid walking road throughout the summer months.

The Cairn-a'-Mounth road seems to have been made use of by Edward I. of England on his return journey in 1296 after his visit to Aberdeen and the north of Scotland. We have seen that on his journey northward he travelled, with his forces, by way of Cryne's Cross Mounth to Durris and thence to the town. After six days in Aberdeen he went to Kintore, Fyvie, Banff, Cullen, Elgin, and Rothes. On Wednesday, 1st August, he was at Kildrummy, and at Kincardine O'Neil, at the hospital of which he passed the night. On the following day he was at the Castle of Kincardine in the Mearns, his direct course being by the Cairn-a'-Mounth road.[1] King Edward made a second journey to the north of Scotland in 1303. His route in approaching Aberdeen it is impossible to trace. On Monday, 19th August, he was at the Castle of Kincardine in the Mearns. Where he was on Tuesday is not known. On Wednesday he was at Glenbervie. Thursday is a blank. On Friday, 23rd, he is set down as having been at "Haghenhauer" and Aberdeen, where he stayed an indefinite number of days. The probability is that as he travelled from Glenbervie, and was not on this occasion "among the mountains," he came to Aberdeen directly by the Cowie Mounth. After visiting Banff, Cullen, Rathven, Elgin, Kinloss, and various other places in Speyside, Edward is again at Kildrummy, on his way south, on Wednesday, 9th October. The diary of his movements now becomes very defective. We are only certain that on Sunday, 13th, he is at Fettercairn, and on the 16th he is at Dundee. Again he evidently took the direct route to Kincardine Castle and Fettercairn by the Cairn-a'-Mounth that he travelled seven years before.

The Cairn-a'-Mounth road was in good use throughout history, so far as occasional glimpses of its use enables us to judge, and we have substantial evidence of the fact in the provision of the Bridge of Dye, that carries the highway over the Dye Water, which is now the oldest bridge in the whole valley of the Dee except the Bridge of Dee at Aberdeen. Prior to the erection of the bridge the Ford of Dye was at that spot, and was evidently well known.[2] The bridge was provided

[1] See Gough's *Itinerary*, ii. 143-4. As to the claim that King Edward travelled by the Fir Mounth road, see p. 174. That seems quite erroneous.

[2] "In a remote and rude age," says Rev. D. S. Fergusson, minister of Strachan, in 1842, "the Cairn o' Mount road, the great line of communication across the Grampians, was haunted by a lawless banditti. . . . About a century and a half ago (as is related) a highlander passing to the south was obliged to stop at a smith's shop at Ford of Dye, near where the present bridge stands." *New Statistical Account of Scotland*, xi. (2), p. 239 *n*.

mainly by Sir Alexander Fraser of Durris, who owned the lands of Glen Dye, about 1680, and this interesting structure, with its ribbed arch, after the manner of the Bridge of Dee and certain others of the older bridges of Scotland, has discharged its function in that remote spot for nearly 250 years. The only definite information relative to the bridge is contained in two Acts of the Scots Parliaments of Charles II. and James VII. The first, of date 1681, runs :—

"The Kings Majestie and Estates of Parliament, having considered a Petition presented by Andrew ffrazer of Kinmundie Representing That wheras by the liberal and charitable contribution of the deceist Sir Alexander ffraser of Doores Baronet [1] and of the deceist Mr. George Meldrum, late Minister of Alfoord, And the industry, great pains, and expence of the Petitioner, ther is of late Ane stonebridge of Asclerwork of a large extent of ffyftie foot diameter erected over the water of Dye upon the publict road that crosseth the Cairne of Mounth, Which Bridge standeth upon one of the most impetuous waters within the Kingdom wher many have perished, And as this bridge was a most necessary work, so lykways it is subject to great and sudden Innundations and danger of being spoyled by storms, And therefore ther is a necessitie of a yearly supplie and continual attendance to prevent its ruine, Wheras there is no stock to that end, ffor the money mortified by the said Minister was only Two Thousand Merkes, which scarce served to pay the Maisons builders of the said Bridge, Albeit at their entry the stones were all hewin, And all other materials and service laid to their hands, And it being usuall in such caices, Wher ther is no stock to vphold Bridges, that Parliaments grant Warrands to such persons upon whose ground these Bridges stands, or who have been instrumental in building them to collect from travellers and passengers Ane small toll from men, horse, and Cattell crossing therat for vpholding the work, And supplicating that ordor and Warrant might be granted to the Effect vnderwritten ; The Kings Majesty and Estates of Parliament Having heard and considered the forsaid Petition and Report of the Articles thereanent, Doe hereby grant, ordor and Warrant to the said Andrew ffraser, Petitioner to exact and vplift at the Bridge of Dye, for vpholding of the said Bridge, the small customs vnderwritten for the space of Nynteen yeers after the date hereof, viz. for each sadled horse and his ryder, or each horse with a Burden, Eight pennies scots money, And for each man or woman, or each horse, ox, cow (four sheep) or other small beast, ffour pennies money foirsaid, With power to the said Petitioner to appoint a Collector for vplifting therof. He having found sufficient Caution that what shall be so vplifted shall be employed to the use above mentioned."[2]

The upliftings of the toll on the Bridge of Dye proved, however, unexpectedly difficult. Persons using the roads and bridges in 1681 were no more willing than their successors in the days of turnpikes to pay toll if they could avoid it. Accordingly, instead of using the new bridge over the Dye and paying the toll, travellers on the Cairn-a' Mounth road forded the stream when it was at all possible, and evaded their just charges. In 1685, therefore, Sir Peter Fraser of Durris, son

[1] For whom Fraser of Kinmundie, his nephew, was factor

[2] *Acts of the Parliaments of Scotland*, viii. 364.

of Sir Alexander who provided the bridge, petitioned Parliament to the following effect:—

"And now seeing that, by experience of collecting at the said Bridge, the yearly toll forsaid doth not amount to tuentie pound Scots by reason the Water is but small, except at extraordinary times, And the Bridge, lying in a mountainous place is not so much frequented except at certain Seasons and when there is no speat of waters it is easily fordable, albeit the water when in speat is a great torrent and Damnefies the bridge exceedingly, It being therfor requisit that for the supply of the said Bridge the toll foirsaid be perpetual As to other bridges in the same case And that the samen toll should, after expyring of the nynteen yeares for which it was first granted be therafter payable to your suppliant, his aires and successors, heretors of the Lands upon which the said bridge stands to be by them expended for the use of the said bridge."[1]

This petition, like the other, was granted, but for how long the toll was exacted nobody can tell. No one in that region now has any recollection or knowledge of a toll having been charged on the Bridge of Dye. Yet it has been kept up admirably through these two centuries and a half, and will doubtless carry the Cairn-a'-Mounth road over this impetuous mountain stream for many a year to come.

Through all these centuries the Cairn-a'-Mounth was a main road from Edinburgh to the north country. By Taylor and Skinner, 1776, we trace it as the Edinburgh to Fochabers road—over by Fettercairn and the Bridge of Dye, then across the Feugh at Whitestones, and over the hill, as at present, by the "shooting greens," to the boat and ford of Inchbare, Potarch. The ancient crossings at Inchbare continued to be used till the erection of the present fine granite bridge of Potarch—designed by Telford—the foundation of which was laid in 1812. On the north side of the Dee the road went by Kincardine O'Neil, Lumphanan, and Torrie to Kildrummy, the chief seat of the Earl of Mar, the most historical stronghold in all the north country. A branch of the road went from Lumphanan directly northward by Alford, the Kirktown of Tullynessle, and Gartly to Huntly, Keith, etc., and was probably far more used than the other in the period of the large cattle trysts.

After crossing the Mounth and the Bridge of Dye the Cairn-a'-Mounth road forked as it still does, the branch road striking north-eastward over the Dye by the Bridge of Bogendreep to the side of the Feugh opposite the church of Strachan. Thence it ran, as at present, along the right bank of the Feugh—there was no bridge at Strachan then—by Mill of Cammie, to the boat and ford over the Dee at Banchory. From Banchory Church the road joined the Monymusk road by Mill of Hirn, and so to Old Rayne, where, as already explained, it joined the road from Aberdeen to Huntly.[2]

## 8. Forest of Birse Mounth.

This leads from "Cairn Corsse" to Birse, "sex myles of mounthe,'[3]

[1] *Acts of the Parliaments of Scotland*, viii., 496.

[2] Taylor and Skinner, plates 29 and 30.

[3] *View of the Diocese*, as above, p. 77 *n.*

and seems to be the road that, leaving the Cairn-a'-Mounth road near Feughside Inn, struck north-westward over the Birse hills slightly east of Finzean House, and thence passed, as at present, through the village of Marywell, and so on to Birse Church and the bridge over the Dee at Aboyne. It has "sex myles of mounthe," and, generally, is an old line of road. Near the summit is the triangular artificial cairn that may have given the road its name, for near by is the more noted "Corse-Dardar" stone, or Cross of Dardanus, set up by the roadside. The stone is clamped with iron clasps in a careful way. About the middle of last century, when the road was being shifted, the workmen broke the stone in two, but Archibald Farquharson of Finzean, the proprietor, had it carefully mended and set up as it is now.[1] It was along this road that Queen Victoria and the Prince Consort drove, towards Balmoral, on 21st September 1861. Formerly the road led to the ferry near the site of the Bridge of Aboyne. According to Dinnie, historian of Birse, there was a ferry-boat and ford a mile or thereby east of the bridge.[2] This must have been so, for near the farm of Waterside there are evidences of a ferry, and the farm people still speak of the tradition of a ferry at that spot.

## 9. Mounth Gammel, or Fir Mounth.

Leading from Glen Esk to Glen Tanner, this "contains sex myles of mounthe," and is the well-known Fir Mounth, named so in later times, doubtless, from the noted fir woods in Glen Tanner, and the traffic in these by floaters on the Dee.[3]

Starting from Tarfside, in Glen Esk, this well-used pass ascended by the east side of the Hill of Cat, thence, holding in a slightly north-westerly direction, it crossed the hill of Craigmahandle, and descended into Glen Tanner. In the General Wade period it was improved as a military road, and it is still a grand walking road over the hills. On coming down the mountain side into Glen Tanner a branch of the road struck down, on the left, to what was known, three-quarters of a century ago, as the "Fir Mounth Stile," at a wooden bridge, where the stone bridge is now, near Glen Tanner House. The main road came down to the flat bottom of the glen farther east, near the old cottage that the late Sir William C. Brooks, of Glen Tanner, transformed into an Episcopal Chapel, in the graveyard of which he was buried on his

[1] *History of Birse*, by Robert Dinnie, p. 119. The road is always spoken of in the locality as the Corse-Dardar Road.

[2] *Ibid.*, p. 49.

[3] Glen Tanner "is, indeed, but one great forest of tall firs, belonging to the Earl of Aboyne." *View of the Diocese*, p. 633. Rev. W. Robertson, writing in 1725 of that region, says:—"The country is mountainous, not very fertile, the people living more by trading in timber than husbandry, this timber they have from the wood of Glentanar, which lies on the south side of the said Parish and is the only ornament of the place. It is very large in extent, and 10 or 12 miles in circumference, tho' not full in all places. The timber in this wood, which is all fir, grows to a great height and bigness, the whole country round about being served in fir-timber out of it, to the considerable advantage of the Earl of Aboyn who is Heretour of it as he is of al that Parish." *Geographical Collections* by Walter Macfarlane, Scot. Hist. Soc., i. 106.

death in 1900.[1] Presently, the road crosses the Tanner by the high single-arch (military) bridge. A branch struck down Glen Tanner, by the south side of the stream, to the Dee, crossing at Aboyne. The main road held northward, however, over the hill between the Tanner and the Dee by Tillycairn—where much diversion of the roads took place at the instance of Sir William C. Brooks—and while a branch struck off to the right to cross the Dee near Glen Tanner Church, "The Black Chapel in the Muir" (of which only the west gable remains standing), the main road crossed the river slightly farther west. There it connected with the road to Tarland and Kildrummy, as also with the more westerly road that runs by the east side of Morven and the Birkhill Pass to Strathdon. On the road at the hill-top near Tillycairn is a roughly-squared granite memorial erected by Sir William C. Brooks, with the inscription:—

FIR MVNTH
ANCIENT PASS OVER THE GRAMPIANS
HERE CROSSED THE INVADING ARMIES OF
EDWARD I. OF ENGLAND
A.D.
1296 AND 1303
ALSO THE ARMY OF MONTROSE
1645

This inscription, unfortunately, is quite inaccurate as regards King Edward of England, and it is almost certainly inaccurate also as regards Montrose. King Edward, as already explained, crossed the Mounth four times, twice in 1296 and twice in 1303. In 1296 he crossed first at Durris, and secondly, in going from Kildrummy to Kincardine O'Neil (one day), and to the Castle of Kincardine in the Mearns (next day), he almost certainly went by the direct road, the Cairn-a'-Mounth. In 1303 he went from Glenbervie to Aberdeen, and although the record is defective there is no evidence that he went otherwise than by the Cowie Mounth. As to his return journey the record is again defective, but he went from Kildrummy to Fettercairn, and to go by the Fir Mount would have taken him a roundabout way, and past his objective. The probability—practically a certainty—is that he returned south by Kincardine O'Neil and the Cairn-a'-Mounth as he did on the previous occasion.

As to Montrose, he was not appointed Lieutenant-General for the King in Scotland till 1644, and he did not appear in this region at the head of a Royalist army till 11th September 1644, when he crossed at Durris, two days before he destroyed the Aberdeen defence at the Crabstone Rout. Repeatedly after that, in 1644 and 1645, Montrose crossed the Mounth, but while his route is sometimes doubtful, it was never probably by the Fir Mounth. On every occasion he seems to have crossed from one open region to another, on either side of the

[1] Half a century ago this was the house of the miller in Glen Tanner. The gravestone of Sir William C. Brooks, in the little graveyard, is a reproduction of the remarkable Celtic cross still standing in the woods of Aboyne Castle.

Grampians, but the Fir Mounth at its southern end is subordinate to the long Glen Esk, most unsuited to the dashing movements by which Montrose's leadership were distinguished.[1]

As the Fir Mounth road, in its northward course, reached the Hill of Cat, at a height of over 1800 feet, a branch track struck off to the right that has long had the curious name of the Fungle Road. While the Fir Mounth held slightly to the north-west, the Fungle Road struck slightly to the north-east, and, passing the old Castle of Birse—now repaired and reoccupied—at the head waters of the Feugh, it wound round the west shoulder of Carnaferg, and moved down the long northern slope by the Allt-Dinnie to the crossing of the Dee at Aboyne. Only three to four miles separated the crossing of the Dee by the Fungle Road and the crossing by the Fir Mounth route, on the west, but the Fungle seems also to have been used to a considerable extent. The northern end, along the Allt-Dinnie, was put in order by Sir William C. Brooks, and is a favourite walk with summer visitors to Aboyne and district. The rest of the old track, through the moor, is in bad order, but quite sufficiently good for walking.

## 10. Mounth Keen.

This route runs "from Innermarkie to Canakyle, on Deeside, and containes ten myles of monthe."

This well-known pass is sometimes called "The Mounth," from the fact that it is the highest of the main roads over the Grampians, reaching to within the 2500 contour line on the west shoulder of Mount Keen.[2] From Glen Mark the pass ascended Mount Keen, as just mentioned, to the height of 2500 feet. Dipping quickly down the north-west shoulder of the mountain into Glen Tanner, and crossing the Tanner by a ford—near which the remains of the public-house of Cairniebhruaich are easily distinguishable—the road ascends the northern ridge by what in recent years was a well-made path to the moss near the Pollagach Burn, between Cairn Leughan and Knockie Branar. From the north-west side of the moss traffic by the Mount Keen route passes downward by a good moss road, made about three-quarters of a century ago, that leads down through the gate in the deer fence and the policies of Glenmuick House, to issue on what is now the Ballater Road at the east end of the Bridge of Muick. Prior to the making of the moss road, however, the Mount Keen track struck northward by the east end of the moss, and through what is now the Braiklie Wood in an almost direct line towards Ballater. This part of it was the "Kirk

[1] One of Montrose's crossings that has been rather misunderstood was his crossing the Mounth southward after the battle of Alford, 2nd July 1645. He was clearly at Craigton, near the Hill of Fare, and what are said to be Montrose's entrenchments are still shown near Craigton farm. His clear and direct route from Craigton to Fordoun was not by the Loch of Skene and the Culter Ford, as has been suggested, but by Crathes and Cryne's Cross Mounth, which he had formerly used, and was the shortest, or by the Cairn-a'-Mounth.

[2] The highest pass actually in the British Isles is that from Glen Isla over the shoulder of Glas Maol to the Cairnwell, reaching an altitude of 3300 feet above sea-level.

Road" for the dwellers at Etnach and Coirriebhruaich in the upper part of Glen Tanner. From Glen Muick the Mounth Keen road would lead eastward over the shoulder of Culblean and Coldstone to the Birkhill Pass and Strathdon; or, turning westward, it would lead by Glen Gairn to the Fort George road by Tornahaish, Corgarff, and Tomintoul.[1]

## 11. Capel Mounth.

This leads from Clova to Glen Muick, and "conteins twelve myles of monthe."

The name of this pass may seem a little puzzling. It is not Gaelic. As already remarked, none of these Mounth road names derives directly from the Gaelic. The old Gaelic inhabitants did not name roads—they had none to name. Like many similar names in Scotland, Chapelton, Kepplehills, and so on, that always indicate the site of a chapel, the name of the Capel Mounth tells of a chapel (*cappella*) in that region.[2] The name of Spital of Muick, near the northern end of the pass, supplies the key. Here the Bishop of Aberdeen established an hospice or hospital—which would have its chapel—hence the name of the Capel Mounth and of the Capel Burn, Glen Clova, at the southern end of the pass.[3]

The length of the Capel Mounth is not twelve miles, but less than six miles from its southern end below the Capel Burn to Spital of Muick. It would be about twelve miles to the Dee. It would be a very convenient pass between Glen Muick and the Braes of Angus, and may have been a good deal used in the days when the district was more largely populated than now. The late Rev. J. G. Michie, of Dinnet, says:—

"The clachan of Milltown of Crathie was of old a place of much resort. There was there both a ferry and a ford over the Dee, communicating with the south country by the Capel Pass and Glen Clova. It will be remembered that Montrose, in his memorable retreat through Angus to the North, crossed the river here 1st May 1645.[4] Long after his time refreshments could be had at the boathouse. In 1696 we learn from the Poll Book that there was a large population in the neighbourhood. In 1801 the mill had disappeared, although the name of Milltown still remained; and, though the ferry and ford had ceased to be used, the old boathouse continued to be frequented as an inn until about 1824. It was then abolished as a nuisance." [5]

The Capel Mounth road, which started from Glen Clova at about 1000 feet above sea-level, rose in about a mile to 2250 feet, and went

[1] This pass over Mount Keen, like others, was much used within living memory by bands of men and women who went over into the south country for harvesting. They were known as "Thravers," from *thrave*, 24 sheaves of grain, wages being paid accordingly.

[2] Sometimes, but very rarely, the term "Capel" may derive from *capull*, a mare.

[3] "There was an Hospital at Spittal (below an ale-house) on the east end of Loch Muick, where there is a pass (called the Caiple Month) to the hills of Clova."—*View of the Diocese*, p. 640.

[4] This does not mean that Montrose crossed by the Capel Mounth. As he crossed from Dunkeld, the likelihood is that he crossed by what is known as the Cairnwell.

[5] *Records of Invercauld*, p. 57.

along most of the way above the 2000 feet level. When nearly opposite the north end of Loch Muick it descended to 1350 at the Spital of Glen Muick. In winter, like most of the other Mounth passes, it was extremely dangerous, as testified by the numerous snow posts and cairns erected for the guidance of travellers—certain of the cairns, indeed, being erected as memorials of persons who had lost their lives in the pass.[1] The Capel Mounth is now only a rough track used by shepherds and tourists.

From the Glen Muick road, slightly west of Glenmuick House, an old track—known from smuggling days as a "whisky road"—formed a short cut to the southern portion of the Mount Keen route. It passed southward by the west shoulder of Cairn Leughan, and, crossing the Tanner half-a-mile above the falls, joined the Mount Keen pass at the county boundary. This track kept a good level all the way, avoiding the great dip that the main road makes into Glen Tanner.

A more famous subsidiary path in the Glen Muick region is the "White Mounth" path over Lochnagar. The present name of this famous mountain belongs really to the loch, but it can never be changed now. There is evidence that the old name of Lochnagar was Beinn-nan-Ciochan, that is, Hill of the Breasts, in reference to its characteristic peaks. The path to the top is a very old one, but about 1870 Queen Victoria made it a pony track, when the zigzag path—the celebrated "Ladder"—was cut up the face of Cuidhe Crom, where previously the path went straight up.

## 12. The Tolmounth.

This was also a well-known path, that led from the more important Cairnwell road, in Glen Clunie, over into Angus. It left the Cairnwell road above the junction of the Callater Burn with the Clunie, at 1250 feet. Ascending Glen Callater, with Sron Dubh (Black Nose) on the right, it passed along the north-east shore of Loch Callater, passed over the Tolmount (3143) within the 3000 feet contour line, and descended by the zigzag "Jock's Road" into Glen Doll, thence to Glen Clova, where it joined the Capel Mounth road as above described. In the seventeenth century the Tolmounth pass was not sufficiently important to be included in the list of roads over the Grampians. It must have been of considerable importance, however, in the droving period, and, of course, is a notable right-of-way.

## 13. The Cairnwell Road.

This notable pass leads from Perthshire, by Glenshee and Braemar, to the uplands of Aberdeenshire and the northern counties, and has been known by various names—"Carnavalage" (1657), late local

[1] On 1st May 1892 a party of sixteen cyclists crossed by the Capel Mounth from Glen Muick to Glen Clova. They pushed their bicycles all the way over the mountain path, and finished the day at Forfar. They were the first cyclists to cross the Capel Mounth. See *Mountaineering Club Journal*, ii. pp. 140-1.

pronunciation, "Carnwallak."[1] The writer of the *View of the Diocese*, *c.* 1732, gives the name as Carnavalage.[2] This must be taken as nearer the original form than the present "Cairnwell," and (being almost right in pronunciation) bears out Macdonald's idea that the name has nothing to do with the well, but is really "Carn a' bhealaich," the "Cairn of the Pass."

The Cairnwell is an ancient and well-known pass—the highest carriage road in Britain. The provision of an hospital or hospice there centuries ago indicates that it was well used.[3] After the period of the Jacobite rebellions it was the recognised route from Perth to Fort George. The road from Perth crossed the Tay near Coupar-Angus, and passed through Blairgowrie at 58 miles. Spital of Glenshee was passed at 77 miles, from which over the Mounth, to Castletown of Braemar—summit 2200 feet above sea-level—was a distance of 15 miles.[4] From Braemar the line of the road was the Old Deeside Road —over the General Wade bridge of 1762 at Invercauld—to opposite Balmoral, where it turned north-eastward, and, crossing the Gairn by the General Wade bridge at Gairnsheil, still in use, it struck over, as at present, by Tornahaish, Corgarff, and Tomintoul, and thence by Bridge of Brown, Grantown, and Nairn to its destination, Fort George, 164 miles from Perth.

The Cairnwell Pass was not of so much consequence, probably, until after it was formed into a military road by General Wade. In 1864 the ten miles of road from Cairnwell to Braemar was reconstructed and the gradients improved—and the road diverted in many places—at an expense of £2739, 11s. 11d., contributed by the late Prince Consort, and £1138, 17s. 11d. contributed by the late Colonel Farquharson of Invercauld. The same year the bridge carrying the road over the Clunie at Braemar was rebuilt at a cost of £1053, 2s. 6d., paid by the four heritors of the parish.

## 14. Glen Tilt Route.

This was not an important road, but it is an ancient route over the Mounth, and, as connecting with our Old Deeside Road, it is not to be omitted. It is too well known to need description. After leaving Blair Atholl it passes through some of the most beautiful scenery in north Perthshire. Later, and while it is merely a bridle path, the scenery is desolate, and as it comes round into Glen Dee, and turns eastward to the Linn, it touches the wildest scenery in the Grampian range. Pennant, who travelled by this route in 1769, considered the road through Glen Tilt "the most dangerous and the most horrible I

[1] James Macdonald's *Place Names of West Aberdeenshire*, p. 88. Although often wrong, Macdonald was very careful on such points.

[2] *View of the Diocese*, p. 77 *n*.

[3] "Ther was an Hospitall at Carnwall (called Shean-Spittal, or Old Hospital) wher ther is a road over the Grampian Hills."—*View of the Diocese*, p. 542.

[4] Taylor and Skinner, plates 26 and 27, give the distance as slightly less.

ever travelled."[1] Others have found it more agreeable. By the ordinary route the distance from Blair Atholl to Braemar is about 25 miles, but experienced mountain travellers sometimes vary the route by crossing the mountains between Glen Tilt and Glen Clunie.[2]

## 15. Glen Derry Drove Road from Strathspey.

This old pass, known as the Lairig-an-Laogh (Pass of the Calf), on the Inverness side of the boundary line, like certain of the others mentioned, is used now only by tourists. But it was once a well-known route, and remains of dwellings that one still sees in Glen Lui show that there were houses by the wayside. It served as a cross-country route between Speyside and Atholl, *via* Glen Ey, or by the Cairnwell Pass, and was used also in connection with the Old Deeside Road by Braemar eastwards. It could be reached from Speyside (1) from Aviemore, by Coylum Bridge and Loch Morlich, (2) from Boat of Garten, by Kincardine, Rhynie, and the Nethy, and (3) from Nethy Bridge and the lower districts of Speyside, by the road along the valley of the Nethy, a good though rough road still by Kynettin, for Loch Morlich and Cairngorm, on the right hand, or across the Nethy, below Nam Suim, for Glen Derry, on the left.[3] Through Glen Derry and Glen Lui the route is familiar to all who wish to make the easy ascent of Ben Muic Dhui from Braemar. In 1776, Rev. Charles Cordiner, of the Episcopal Chapel, Banff, passed along this route, and described the appearance of the place in a letter to Pennant.

"Leaving Lui Beg, an opener but rocky dale on the left, see a charming valley of meadow-ground, with much fine natural grass. The ruins of several stone buildings show that it had been once inhabited; but it is now, as the other pastures of the forest, left to fatten the deer. On the sides of the hills bordering on the valley are many thousand stumps of trees, the remains of woods which have been floated down Lui Water to the Dee.

"From thence by a narrow path, winding among trees, there is an entrance into a dale called Derry, singularly wild and picturesque. . . . Ridges of rocky mountains run along its sides, and these, connected at the farther end, form a magnificent boundary to some miles of pretty level ground."[4]

Besides all these more or less important routes over the Grampians —connecting with the old Deeside highway, running east and west, and communicating with the country on both sides of it, north and south— various minor routes were in use that acted as "feeders" for the old highway, or formed convenient passes for districts not otherwise served. These included the Glen Feshie-Geldie Pass, that gave access from the

[1] *Tour in Scotland*, 2nd ed., 1772, pp. 106-7.

[2] For the detailed time table of a party of tourists by this route, in 1908, see *Scottish Mountaineering Club Journal*, x. 231.

[3] The road is now becoming practically impassable for vehicles, but thoroughly good for walking. A few years ago, in a very wet season, the writer cycled it practically all the way from Nethy Bridge to Loch Morlich.

[4] Cordiner, *Antiquities and Scenery of the North of Scotland*, 1780, p. 27. Three quarters of a century later, John Hill Burton found the same route equally delightful. See his *Cairngorm Mountains*, 1864, pp. 25 *et seq.*

upper regions of Strathspey, by way of Braemar, to both Deeside and the south country, the importance of this pass being shown by this, that there was a great market stance at the junction of the Geldie and the Bynack Burns, where the Glen Feshie-Geldie Pass joined that of Glen Tilt. Then there was the rather famous Lairig Ghru, a branch of the Glen Derry route; also the Glen Builg Pass, that was a well-used drove road from the north country beyond the Avon by way of Loch Builg to Braemar on the one hand, and down Glen Gairn on the other.

With the exception of the Slug Road, Cairn-a'-Mounth, and the Cairnwell Road, all these old passes are out of use, except by tourists and by shepherds and hill-keepers. Certain of them, such as Cryne's Cross Mounth, the Stock Mounth, and the Builg Mounth, are now untrodden even by tourists. Yet they all have their significance, for they not merely affected, each in its own district, the Old Deeside Road —the main road from Aberdeen westwards along the Dee Valley to Kindrochaid (Braemar)—but they had an influence on the growth of civilisation in this whole north-eastern part of Scotland.

*Note.*—I should like to acknowledge suggestions received, and revision of certain portions of the foregoing paper, from Mr. G. Gordon Jenkins, C.E., Aberdeen.—G. M. F.

## BARTHOLOMEW'S NEW ATLAS.[1]

THE need of a large-scale modern Atlas of the World has long been felt. The large atlases of British production so far available can scarcely be said to have kept abreast of modern geographical development. Geography as a science cannot be expected to receive adequate recognition and widespread acceptance as long as the old style of map, which shows places and boundaries without relation to surface features, is prevalent. There is probably no more satisfactory way of advancing the study of geography than by the general use of a good atlas. Some years ago, in an address to the Royal Geographical Society, Mr. Rudyard Kipling said that "as soon as men begin to talk about anything that really matters some one has to go and get the atlas." The pity is that the atlas is too often a bad one, or at least one that fails to elucidate the discussion, as adequate maps might do.

This want is now supplied by the new atlas in the course of production by the Edinburgh Geographical Institute. The name of Bartholomew has long been a guarantee of first-class cartography and high standard of production. The present work enhances the reputation of the firm, and takes its place as the foremost British atlas. More publicity might well be given to the geographer who planned and the firm which

[1] *The Times Survey Atlas of the World.* Prepared at the Edinburgh Geographical Institute under the direction of J. G. Bartholomew, LL.D. London: *The Times* Office, 1920. To be completed in 37 fortnightly parts. Price 2s. 6d. each part.

executed the maps rather than to the London newspaper which, we understand, is merely the publishing and distributing agency. It should be added that the present atlas has nothing to do with a former *Times* Atlas long out of print.

The complete atlas will include 112 double plates, each measuring 23 inches by 18½ inches, and an index of over 200,000 place-names. Most of the maps are on the layer colour system of relief representation which Dr. Bartholomew was the first to popularise in this country. The Edinburgh Geographical Institute has always excelled in this method in fineness of line, delicacy of colour-printing, accuracy of register, small but most legible type, and avoidance of overcrowding. The greens and browns, familiar in Bartholomew's reduced Ordnance Survey maps and survey atlases of Scotland and England, are employed throughout. Political boundaries are overprinted in red. The cartography of the sectional maps is carried to the edges of the sheet, and not limited by political frontiers. This adds considerably to the value of many maps. Most of Europe is on a scale of at least one million, and only Russia is on a smaller scale than two million. The British Isles on a scale of 10 miles to one inch are shown on seven plates, with numerous enlarged inset maps. Various parts of North America are shown on a scale of either five million or two and a half million. Northern Argentina, Chile, and Uruguay, on a scale of five million, is a most useful map. Other continents are treated equally well. Mercator maps are introduced to show ocean routes and submarine relief. Plans of the chief American cities are an innovation in a British atlas. Comparison between different countries and a sense of proportion are much facilitated by the various scales employed being simple multiples of one another.

It is not to be expected that a work of this magnitude could be flawless. The exigencies of colour-printing necessitate the maps going to press long before the date of publication. But the criticisms we have to offer deal only with minor points. Railway lines of some importance are omitted in Persia, Baluchistan, and the Siamese Malay States. The transliteration of Russian names, so far judged only from the sheet of the North Pacific Ocean, leaves scope for improvement. Lastly, it would have been an advantage if the maps, especially the economic and population insets, had been dated. It must, however, be remembered that the loose leaf system of binding, for which the plates are hinged and slotted, allows the atlas to be kept up to date by the substitution of a new plate for any one which has become obsolete.

This atlas is not only the best now on the market, but it is one which for general purposes of reference and geographical study it would be difficult materially to improve. It lacks, no doubt, the detail of Stieler, but it is far clearer and easier to read, and so will appeal to a wider public, while in its insistence on accurate representation of relief it is more truly geographical. Dr. Bartholomew's atlas is the crowning triumph of a life devoted to the improvement of cartography and the spread of an intelligent interest in geography.

R. N. Rudmose Brown.

# PROCEEDINGS OF THE ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.

## Meetings of Council.

At a meeting of Council held on the 29th April, it was unanimously decided that the following minutes expressing the Council's sense of the loss that the Society had sustained through the deaths of Dr. Bartholomew and Lord Guthrie should be recorded; and that copies should be sent to Mrs. Bartholomew and Lady Guthrie respectively. The minutes are as follows:—

"The loss which this Society has suffered since the last meeting of Council through the death of Dr. Bartholomew is one that demands special commemoration.

"About thirty-six years have passed since he, as an enthusiastic geographer of twenty-four, suggested the founding of such a Society. So energetically did he urge the project that, in spite of unexpected opposition and discouraging circumstances, he, with the aid of the zealous band of helpers whom he gathered round him, succeeded within a few months in securing its inauguration. From that time forth his devotion to the Society never flagged. As one of the Honorary Secretaries of the Society, from its foundation till his death, he was assiduous in his attendance at meetings of Council and Committees so long as his health permitted. His forethought, his guiding hand in conducting the affairs of the Society, his unfailing courage during periods of depression, and his generosity were conspicuous at the Council table. The success of the Society was one of the great ideals of his life. Indeed the Council feel that the high reputation which the Society has gained in all parts of the civilised world is very largely due to his unwearied efforts and to his acknowledged eminence as a cartographer.

"The Council recognise that his death causes a blank which no one can adequately fill, and they unite in expressing deepest sympathy with Mrs. Bartholomew and family in their great bereavement."

"The Council desire to place on record an expression of their high appreciation of the services which they owe to the late Lord Guthrie, not merely during his tenure of office as President in the years 1916-19, but also during his whole connection with the Society, of which he was a member almost from the beginning. His interest in the Society never failed. The graceful and genial manner in which he represented the Society on all public occasions will long be remembered by those who were present. The Council unanimously resolved to instruct the Secretary to send a copy of this minute to Lady Guthrie, along with an expression of their deep sympathy with her in her loss."

## Diploma of Fellowship.

At the meeting of Council held on 8th June, the Diploma of Fellowship was awarded to Norman M. Johnson, M.A., B.Sc., Kirkcaldy, and John W. Moir, Edinburgh.

### Bequest from the late Dr. J. G. Bartholomew.

A letter was read from Captain Ian Bartholomew intimating that under the will of the late Dr. Bartholomew the sum of £500 was bequeathed to the Society. The Secretary was instructed to write to Captain Bartholomew a letter expressing the appreciation of the Council of this generous token of the late Dr. Bartholomew's interest in the Society.

### Hon. Secretaryship.

It was unanimously agreed to recommend the election of Captain Ian Bartholomew, M.A., M.C., as Honorary Secretary to the Society in succession to his late father. It was also agreed that Professor J. W. Gregory, F.R.S., Glasgow, should be invited to act as one of the Vice-Presidents of the Society.

### Lectures in June.

Under the auspices of the Committee in charge of the formation of the National Collection of Maps of Scotland, an Exhibition of Maps was held in the Society's Rooms during the month of June, and in connection with this Exhibition the following series of lectures was delivered :—

"Early Maps of the Lothians, and the Men who surveyed them." Mr. Harry R. G. Inglis, F.R.G.S.
"The Gael in the Lothians." Prof. W. J. Watson, F.R.S.E.
"The Roman in the Lothians." Dr. George Macdonald, C.B., F.B.A.
"Prince Charlie in the Lothians." Dr. W. B. Blaikie, F.S.A.(Scot.).

---

## OBITUARY.

### Dr. J. G. Bartholomew.

By the death—at Cintra, Portugal, on April 13 last—of J. G. Bartholomew, LL.D., the Society has lost a most devoted friend and supporter, and British cartography one of its most skilled and conscientious exponents.

John G. Bartholomew was born in Edinburgh in 1860, and was the elder son of another John Bartholomew, the founder of the great firm of map-makers, and himself the son of a cartographer. Before he was seventeen he entered the draughtsman's office in his father's establishment, and almost at once began to work at that method of replacing hill-shading by contours combined with layer colouring with which his name is so closely associated. A series of experimental maps were produced in the office in the late seventies, and were submitted to the firm which then published Messrs. Bartholomew's maps. They were rejected as unfamiliar, unintelligible, and unlikely to command any sale. Mr. John G. Bartholomew was, however, convinced that the old method of

representing relief was doomed, and it says much for his persistence that in the year 1880, in the first edition of Baddeley's *Guide to the Lake District*, the maps supplied by the firm showed layer colouring. It would seem that these were the first topographical maps with layer colouring to be published, although the system is said to have been expounded by Carl Ritter in Germany at an earlier date. The well-known layer-coloured Reduced Ordnance Survey Maps, published by the firm, began to appear in 1888, and rapidly attained the position which they have held ever since in public estimation. It is scarcely possible to overrate their importance both in teaching the ordinary man the elements of map-reading and in creating a demand for good maps.

From early youth Dr. Bartholomew's health was precarious, and when twenty-one he had an illness so serious that his life was despaired of. On his recovery he went to Australia in a sailing-ship, being absent for a whole year. This was the first of a long series of journeys made in search of health, which continued till the last one to Portugal from which he did not return. On such journeys he habitually took copious notes, but although the diaries of his Australian voyage were published by his father in an Edinburgh newspaper, his real medium was the map, not print, and he wrote relatively little for the press. His visit to South Africa in 1894-5 may be especially mentioned, since it brought him into contact with men of such different types as Cecil Rhodes and President Kruger.

His precarious health throughout his life makes his output of work all the more remarkable. It is not possible here even to summarise his achievements in the realm of cartography, and his great atlases must be familiar to the majority of our readers. It may, however, be well to emphasise that he combined a very delicate feeling for colour with extreme conscientiousness and an almost unlimited capacity for hard work. If it is with developments of layer colouring that his name is most closely associated, it should not be forgotten that he bestowed endless pains on the task of using colour for other purposes. The beautiful map showing the growth of Edinburgh, which he presented to the Edinburgh issue of this *Magazine*, and at which he worked for a long period, is a good illustration of this.

It was indeed his great aim to use colour gradations in such a way as to bring out at a glance the different kinds of facts capable of being represented on a map, and his keen interest in science and human knowledge generally brought him into contact with many different kinds of workers with whom he collaborated. In that he was successful in representing the facts which they had obtained in an immediately intelligible form, it may well be claimed that he directly advanced science. In this connection attention may be directed especially to the work which he did in collaboration with Sir John Murray in the maps of the Challenger Reports, and with Dr. Buchan in the great Meteorological Atlas.

This form of collaboration was rendered all the easier in that he may be said to have had a genius for friendship. Cut off by reason of bad health, more especially in later years, from much of what is gene-

rally called social intercourse, he was all the more closely attached to those who shared his scientific interests. His friends were to be found in all parts of the globe, and his great admiration for the work of some of the German and French cartographers made him a member of that international brotherhood of science which, till the war came to break old bonds, seemed to many to offer such high hopes for the future.

His work for the Society is summarised in the Minute of Council which we print on p. 182 of this issue. His scientific work was recognised by his own University of Edinburgh, which bestowed upon him the degree of LL.D. in 1909, and by the Royal Geographical Society of London in the bestowal of the Victoria Medal in 1905. He was also an Hon. Member of a number of foreign geographical societies.

He married in 1889, and had a singularly happy family life. Of his three sons the second, a youth of much promise, was killed on the French front, while the eldest, Captain Ian Bartholomew, after a distinguished career in the army, returned home and was admitted to partnership in the firm before his father's death. During Dr. Bartholomew's absence in Portugal, also, Captain Bartholomew began to take up the work which his father had been compelled to drop, for though the latter's death was sudden at the last, he himself realised that his working days were probably over. That he should himself have clearly appreciated the fact that a great tradition is of more value than an individual life is characteristic of the man, for he worked for the sake of the work, and merged his own personality in that of his firm to an extent that few realised. His appreciation of the fact that effective map production involves the willing co-operation of many individuals led him, the year before his death, to inaugurate among the firm's employees a profit-sharing scheme by means of co-partnership certificates, which formed a practical acknowledgment of the part played by each in attaining the final result.

## The Hon. Lord Guthrie, late President of the Society.

The son of one of the most famous of Scottish ministers, the late Lord Guthrie possessed many of his father's characteristics, being like him always active and cheerful, amiable, and prepossessing, and being able like his father to captivate an audience with bright and skilful words. In some respects, however, he was more liberal-minded than his father. Many years ago I was present at a meeting in Edinburgh where the leading clergymen, including Dr. Guthrie, protested against a proposal to open the Edinburgh Botanic Gardens on Sundays to the public. Long afterwards I attended a meeting of the Society of Scottish Antiquaries when, in a long and able speech, Lord Guthrie pleaded for and carried the opening on Sundays to the public of the National Scottish Museum of Antiquities.

Charles John Guthrie was born in Edinburgh on 4th April 1849. Like myself he began his educational career at a small but excellent school called "The Southern Academy," which was first in

George Square (where the Ladies' College now is) and afterwards in Park Place (now occupied by the University's Music Department).

From the Southern Academy he passed to the High School, and then to the University of Edinburgh, where he graduated in Arts. Admitted an advocate in 1875 he obtained a good practice, and also exhibited an enthusiasm for politics in the Liberal cause. A devoted member of the Free Church and United Free Church of Scotland, he was their legal adviser from 1881 to 1902. He received the degree of LL.D. from Edinburgh University. In 1897 he was appointed a King's Counsel, from 1900-7 he was Sheriff of Ross, Cromarty, and Sutherland, and in 1907 he was raised to the bench of the Court of Session. Next year he was a member of the Royal Commission on Historical Monuments in Scotland, a subject which peculiarly appealed to him, for he was a lover of history and archæology. He had also intimate relations with Edinburgh's last literary genius, Robert Louis Stevenson, occupying the house at Swanston, Midlothian, where Stevenson once lived, and possessing manuscripts by Stevenson which had never been published. He also assisted in securing as a museum the house in Howard Place, Edinburgh, where Stevenson was born.

The late Lord Guthrie threw himself with great energy into all the social, intellectual, and literary energies of Edinburgh. He was when an advocate a member of its School Board from 1879 to 1881. He was President of its Philosophical Institution. He was a member of Council of the Scottish History Society, and edited in 1898 the *History of the Reformation in Scotland* by John Knox. He was in constant demand as a public speaker, and charmed every assembly he addressed by his winning manner, his wealth of knowledge, his excellent humour, and his admirable common sense.

His connection with the Royal Scottish Geographical Society was long and brilliant. A devoted traveller, he brought to the Society a ripe mind, an enthusiastic co-operation, and an inestimable asset as an erudite and delightful speaker. He joined the Society in 1887, not long after its foundation, and became a member of its Council in 1898. In 1907 he was elected Vice-President, and in 1916 President of the Society, an office which he held till the year before his death.

It would be impossible to tell all the services rendered to the Society by Lord Guthrie, but one may be referred to as exhibiting at once his oratorical powers and his devotion to the Society. A crisis occurred in its affairs in 1907, when H.M. Board of Trustees gave the Society notice that they required the rooms which the Society occupied on the ground floor of the Scottish National Portrait Gallery, Queen Street. For this accommodation the Society had to pay the Board a rent of £125, as H.M. Treasury would not allow the Society to sit rent free. After many anxious meetings, the Council of the Society resolved to approach the Government for a grant to enable the Society to obtain premises, and as Mr. Asquith was Chancellor of the Exchequer and resided near North Berwick, he was invited to meet the Council and hear a statement of its case.

Mr. Asquith acceded to the Council's request, and a memorable

meeting was held in the Society's Rooms in Queen Street on 13th January 1908, when all the Council were present to receive him. Professor Geikie, the President of the Society, occupied the chair, and opened the Council's case, but Mr. Asquith did not seem to be much impressed. Other speakers followed with the same result. At last Lord Guthrie stepped forward, and in a strong, clear address, which riveted Mr. Asquith's attention, presented so forcibly the claims of the Society as a National Scottish Geographical institution with centres in Edinburgh, Glasgow, Aberdeen, and Dundee, that Mr. Asquith gave way, and the Society eventually received an annual grant from Government of £200 on condition that, like the Royal Geographical Society of London (whose grant is £1250), it should allow the public access to its maps and charts.

Lord Guthrie's death at Edinburgh on 28th April 1920 came like a shock to the people not merely of Edinburgh but of Scotland. He was to the Scottish nation one of its most esteemed representative men, welcomed joyfully wherever he appeared, listened to delightedly as he addressed them, and now mourned by them as the loss of one of their best and truest citizens.

### Dr. George Smith, C.I.E., LL.D., F.R.G.S.

By the death of Dr. George Smith the Society lost a distinguished member, a former Vice-President, and one who ever had the wide interests of geographical science at heart. Apart from his own land, his interests were chiefly centred upon India, where a long term of residence and a wide experience of affairs inspired him to much labour not only for the benefit of the internal problems of India, but for the fuller understanding of her interests at home.

His University career was no sooner over in Edinburgh, when, at the age of twenty-one, he went out as a Professer to Doveton College in Calcutta. This institution is affiliated to the local University, and George Smith before very long became its Principal. The Mutiny broke out four years after his arrival, and the horror, the desperate military activity, and civil convulsion probably wakened in George Smith a vision of the great issues which confronted the future of that vast empire. It was a time when the virile spirit of the white race emerged from the welter of shattered confidence to grip the lines of future policy, and no one of George Smith's temperament could have escaped the influence and inspiration. It happened also that about this time he took up the editorship of *The Calcutta Review*, so that his pen early became busy with Indian problems. Following this line of work he transferred to the staff of *The Friend of India*, a weekly journal published in Serampore, Bengal. Mr. Meredith Townsend was the editor, but returned to England in 1860 in order to become joint editor of *The Spectator*. George Smith then assumed control of the Indian weekly, and settled down to steady years of journalism. The fact that after his return to Edinburgh his residence in Napier Road was called Serampore House indicated how much he identified himself with the years in Bengal. *The Annals of Indian Administration*, which appeared

in nineteen volumes, also received his editorship at the instance of the Indian Government, and the London *Times* sought him out as their correspondent.

During Lord Northbrook's Administration famine visited Bengal and Orissa, and spread to alarming proportions. The steps taken to mitigate the evil appear to have been slight, but a series of strong letters in *The Times* roused public opinion at home to the clamant needs of the situation and were the means of forcing Government action. He also vigorously criticised the inactivity of the Indian Government in connection with Russian aggression, and he was at all times a conspicuous champion of missionary enterprise.

It is clear that his services as an exponent of Indian needs were highly valued, for not only did *The Times* make him a special presentation, but he received at last the thanks of the Indian Administration. It was natural that in after life his publications should deal largely with the prominent statesmen and missionaries of India. His *Life of William Carey*, that pioneer among missionaries, who translated the Bible into Bengali, ran into four editions, as did also his well-known *Life of Alexander Duff*. As showing an interest in geography, he produced a *Student's Geography of British India*. Other volumes were on twelve Indian Statesmen, and twelve Indian Missionaries, but his writings cover a wide range of political and religious activity.

On his return home, in 1874, he became editor of *The Daily Review* in Edinburgh, a paper which occupied an important place at one time, but is now but a memory to those past middle life. In 1878 he was amongst the first to receive the honour of C.I.E., and in the same year he was elected a Fellow of the Royal Geographical Society in London, while his *alma mater* bestowed the degree of Doctor of Laws *honoris causa*.

In 1879 he was appointed Foreign Mission Secretary to the Free Church, and two of his sons identified themselves with the ministry of this church, now the United Free Church, the elder being now the distinguished Principal of Aberdeen University; while three other sons went to India, two as soldiers, of whom the elder now holds in London the office of Political A.D.C. to the Secretary of State for India.

When, in 1884, the formation of a Geographical Society for Scotland first was proposed, and an informal conference on the subject was held in the house of the late Mr. A. L. Bruce, Dr. George Smith was one of the number, and presently he and the other promoters of the Society saw their offspring established in rooms at 80A Princes Street, with Mr. J. G. Bartholomew, now, alas, also lost to us, as Hon. Secretary. The first official meeting was held in the Chamber of Commerce on 28th October of that year, and on 3rd December Stanley delivered the Inaugural Address. From the first, therefore, Dr. Smith took a lively interest in the Society's affairs. His dignified presence and fine voice lent strength to all his public utterances, and made him eminently fitted, with his other qualifications, to fill the office of a Vice-President of the Society. In the closing years of his long and useful life, he lived quietly in Learmonth Gardens, unable to take any active part in the

activities in which he had formerly shared. He died on Christmas Eve 1919.

To the writer of this note recollection is, above all else, of a Christian gentleman, sincere in purpose, of broad sympathy and straightforward manliness.

W. L. C.

## GEOGRAPHICAL NOTES.

### Europe.

**Danish Mythology.**—Dr. Gudmund Schütte sends us the following note:—"In the review of my book *Hjemligt Hedenskab* in the last issue of the *S.G.M.*, the rock carvings of Bohuslän are by mistake assigned to Denmark; they now belong to Sweden. It should be noticed also that the sections of the illustration (p. 140) marked Dyrekres A and B are not rock carvings, but fragments of the classical zodiac, added for the sake of comparison. The signs shown are in A—Cancer the crab; dog; bull; Pegasus; foal; Capricornus the goat; and in B—the fishes, dolphin (?), serpent, archer, scorpion, fox."

### Asia.

**The Ruins on the Tigris near Samarra.**—In reference to the account given of these by Col. G. A. Beazeley in his article in our last issue (p. 105), we are requested by the author, who is in India, and was thus unable to revise his proof, to call attention to the fuller details in regard to the old city given in his article in the *Geographical Journal* for February last. It now appears that the visible remains are comparatively modern.

### Africa.

**The Future of Madagascar.**—In *Colonies et Marine* for December 15 last, Colonel H. Garbit discusses some general points in regard to the future development of the French colonies, and in more detail the prospects of the island of Madagascar. He emphasises the fact that the island is to be regarded primarily, not as a field for emigration, but as a source of food products and industrial raw material for the mother country. The aim of the administration should therefore be both to encourage native cultivation and the development of plantations under European control. One great difficulty, however, is the scanty population. In an area which exceeds that of France (approximately 230,000 square miles) the population only numbers about 3,500,000, though it is certain that the island could support far greater numbers.

Another difficulty is found in the limited means of transport, both internal and external. Colonel Garbit regards the development of a

local merchant marine as the prime need, and, associated with this, the judicious improvement of roads and waterways and the railway system, to an extent which will permit of an increased export of produce, without loading the colony with debt.

Granted improved methods of transport, he believes that a considerable increase of production could take place, and gives a summary list of possible or probable lines of progress.

In regard to rice, considerable advances have been made, thanks to irrigation works. Formerly the island did not produce enough for its own needs, but now there is a yearly increasing surplus available for export to neighbouring regions—such as Mauritius, Reunion, and Zanzibar. At present rice cultivation is almost exclusively in the hands of the natives, but large-scale cultivation, with modern equipment and elaborate irrigation works, is being attempted by European planters, especially in the Majunga region, and has given good results. Coffee, cocoa, and vanilla, in contrast to rice, are almost exclusively cultivated by Europeans or immigrants from Reunion. The plantations are stated to be in a flourishing condition. Manioc is grown everywhere by the natives, mostly by primitive methods. It has been also planted by Europeans on a large scale, and, with better methods, these plantations give about ten times the yield of the native plots. Connected with the plantations are factories for the preparation of tapioca and starch, for which there is a great demand in France. The natural forests are extensive, but, like those in similar latitudes elsewhere, are difficult to work owing to the great mixture of species. The author recommends their gradual replacement by artificial woods. Some planting has already taken place of eucalyptus and mimosa, but the woods are not yet mature.

Cattle-rearing forms at present the greatest resource of the island. The stock is at present estimated at 7–8,000,000 heads, but the beef-yielding animals are relatively few. This is due to the poverty of the natural pasturage, especially during the dry season, and the absence of artificial fodder. During the war there was a considerable export of tinned meat for the army, but Colonel Garbit doubts if this trade will survive the return of peace. He therefore urges the need for the extension of the frozen meat trade, which is already carried on on a small scale. Pigs thrive, as do poultry, turkeys, ducks, geese, and so forth, and an export trade in tinned foods obtained from these animals is beginning. It is believed that the merino sheep could be introduced.

Among minerals graphite is the most important, though not until the war did it find a market in France. Iron is widely distributed, but apparently in small quantities, and the difficulties of obtaining fuel have militated against its use by Europeans on any scale, though there is a considerable native iron industry using wood charcoal. Coal does occur in the island, but it is of poor quality, and has been little worked. On the other hand, the resources of water-power appear to be considerable, and might lead to a considerable development of metallurgical industries.

## America.

**The Rainfall of Kauai.**—In this *Magazine*, vol. xxxiv., p. 235, some account was given of the very heavy precipitation on Mount Waialeale, in the island of Kauai, Hawaiian Group. Some further details, with illustrations, are given in the *Monthly Weather Review*, vol. 47, No. 5, where the suggestion is made that the mountain should displace Cherrapunji as the wettest part of the globe. The evidence is not perfectly satisfactory, for not only are records only available for a limited period, but they are discontinuous. The difficulties of observation are great, for the summit of Mount Waialeale can only be reached by expert mountaineers, and the station has been given up on account of the difficulty of finding qualified persons to make the necessary regular visits. During the period August 2, 1911, to March 26, 1914, and May 31, 1915, to August 13, 1917, a period of 1782 days, there was recorded on the mountain a total precipitation of 2325 inches, or an average of 1·3 inches per day. This works out at about 476 inches per annum. Heavy mean annual rainfalls have also been recorded from other parts of the Hawaiian Islands. In the upper valleys generally showers are of daily occurrence, while on the higher peaks the mornings are usually clear, and the afternoons or nights very wet.

## General.

**The Utilisation of Tropical Forests.**—It is an economic commonplace that before the war industrial Europe was largely dependent for food and raw material on the temperate and sub-tropical areas of the new lands. Even before the war, however, there were signs that the productivity of these was diminishing, partly on account of the reckless squandering of natural resources. In consequence, attention was being more and more turned to tropical sources, and this has been greatly accentuated since. Among the natural resources of parts of the inter-tropical area, especially in the vicinity of the equator, are the great natural forests. The world's demand for timber is constantly increasing, even in times of peace, and during the war there has been both an abnormal increase in the amount of wood used, and great destruction of areas under forest, especially in North France. Added to this we have, for most of Europe, the difficult problem of the exchange, so that the timber question is pressing. In *Colonies et Marine* for Jan. 15 last, M. A. Bertin considers the general problem in so far as it affects France, and the question as to the extent to which the woods of the French tropical colonies can be used to supply timber for the mother country.

The fact that tropical forests, in many parts of the world, have only been as yet exploited to a very minor degree, is due to a variety of causes, some of which are familiar. The woods of the North Temperate Zone, which have hitherto furnished the greater part of the timber of commerce, have the advantage that the useful trees occur frequently in pure stands, and that the majority of the comparatively small number of species represented are of some value. Tropical forests are not only

remarkable for the great wealth of species but for the fact that pure stands of any one species are infrequent, and that, while some of the trees have a high value, many of the others yield soft, easily destroyed timber, of little or no use. Wholesale methods of exploitation are thus not available, and the difficulties of transport are usually so great that even the valuable timbers can only be exploited within a narrow radius from main waterways. The trees yielding these valuable timbers mostly occur in isolated specimens, and in the French colonies in tropical Africa the African mahogany is one of the most valuable. M. Bertin points out that the methods of exploitation adopted impoverish the forest, for no attempt is made to clear a space round a mahogany tree as it is removed, and the faster-growing trees in the adjacent area immediately fill the space, and suppress any young seedlings which may be growing round the parent tree. Similarly, the native method of burning out successive areas of forest to make room for new plantations leads to the destruction of fine timber, and, as the plot relapses into bush after a period of cultivation, true forest is continually being replaced by brushwood in which fast-growing, useless species predominate.

To remedy this condition of affairs he makes a number of detailed suggestions. Thus he insists upon the need for classifying the timbers of the African forests in groups, according to their general similarity to Temperate timbers, the members of each group being given a general name which will indicate their commercial utility. Efforts should then be made to favour the exploitation, not of a few valuable species, but of a number capable of furnishing common wood, with a clearly defined range of usefulness. Attempts should also be made to promote the increase of the more valuable species. The general point of interest, however, is that the paper is but one of many signs that it is becoming clear to the thoughtful that "robber economy," even in the hitherto intractable equatorial forest, is becoming impossible for an impoverished world.

## General.

**Cotton in International Trade and Politics.**—To the *Journal of Geography* for March last Mr. G. M. M'Bride contributes a very instructive article on cotton, and the part it plays in world affairs. In the first place he emphasises its importance not only to the world at large, owing to its all but universal use in clothing, but particularly to the industrialised world, owing to the numbers of workers employed, and the extent to which cotton goods enter into external trade in the manufacturing countries, very notably of course in the case of Great Britain. The range of the cotton plant is however very strictly limited, first by climate, second by the labour required in production, and third by the need of easy transport for so bulky a product. Soil is strictly subordinate to climate, and even the famous "cotton soils" of India and the United States owe their value rather to their water-retaining properties than to their fertility. For, while cotton demands much

moisture, it is soil moisture rather than rain which is required. In the later stages of growth, indeed, rain is disastrous, and in essence the plant is one for semi-arid areas. It requires a long growing season, and much sun to ripen the bolls. Thus while lats. 35° N. and 30° S. constitute for practical purposes the limits of the cotton belt, within this zone areas of suitable climate are relatively few. The upward limit of the plant is given as about 1000 feet above sea-level.

In the United States cotton has hitherto been grown chiefly as a rain crop. In India, where it is grown over a distance of 2000 to 3000 miles from north to south, it is a summer irrigation crop in the north, while farther south it is a rainfall crop, being planted in summer to get the monsoon rain during the growing season, and harvested in the dry winter season. In Egypt it is of course a typical irrigation crop. India, Egypt, and China have all the advantage of abundant labour, but as a general rule the semi-arid areas which are climatically suitable have too scanty a population for successful cotton-growing. In such areas, also, transport is often a difficulty.

A factor of very great importance in international politics is that the United States and the British Dominions virtually divide the cotton areas between them, reducing the other manufacturing nations, and more especially Germany, to dependence upon them for a product upon which a large part of their industry depends. The United States, however, as is well known, largely predominate as cotton-producers, the figures being, in 1913, United States 60·9 per cent., India 17·1 per cent., Egypt 6·6 per cent., all other countries, including many British colonies, 15·4 per cent. Pre-war Germany, which ranked third among the cotton-manufacturing nations, and had nearly one-tenth of her population dependent upon the textile industry, despite her African colonies, was not included even among the minor cotton-producing States; this may be regarded as a factor in the war. Mr. M'Bride suggests that Germany was very well aware of the future possibilities of the areas in China round the Hwangho, the Grand Canal, and the Yangtsekiang, and hoped to centre the production of this area in the peninsula of Shantung and her developing port of Tsingtao; and, further, that Japan, with her expanding cotton industry, must find such a vantage point equally attractive. He hints also at the possibility of future international complications here. As regards other possible future areas of large production, attention is drawn to the spread of cotton into the semi-arid areas of the United States by means of irrigation. Along the Salt River and in the Gila Valley of Arizona, in the Yuma region, and in the Imperial, San Joaquin and Pal Verde Valleys in California, large tracts are being planted, especially with Egyptian cotton. In 1918 California's crop was valued at nearly $10,000,000, and Arizona's at over $6,000,000. Vast possibilities for expansion are stated to exist here. The author also discusses possible extensions of areas under cotton in Africa, but as this is a fairly familiar subject here his observations need not be summarised. More novel is the account given of possible extensions in South America. During the American Civil War cotton production and export was notably stimulated in South America, but the difficulty

of transport to the ports caused a falling back with the return of peace. The Great War has also had a markedly stimulating effect, and though the difficulties of transport and of sufficient labour remain, it is believed that these can be progressively overcome. The suggestion is made that Brazil and Peru, which now export only on a small scale, together with the suitable lands in Colombia, Paraguay, and northern Argentina, which do not yet appear in figures of world trade, may in time produce on a scale which will break the virtual monopoly now held by the United States, and the areas under British rule or influence.

### Economic Geography.

**Camphor-growing in the West Indies.**—It is well known that the chief source of the world's camphor supply is the island of Formosa. Some account of the process of distilling the wood to obtain the substance was given here in vol. xxv. p. 95, and an article in the March issue of the *National Geographic Magazine* gives some further details, illustrated by some beautiful pictures. In Formosa hitherto camphor has been obtained by heating wood chips obtained from the wild trees scattered in the forest. The Japanese Government have, however, been alive to the danger of the exhaustion of the supplies, and since their occupancy of the island have encouraged planting. Some of these plantations are stated to be now ready for exploitation, but the important point is that the methods employed involve the total destruction of the trees. Attempts have been made in various regions, notably in Ceylon, Mauritius, etc., to establish plantations, from which clippings only would be employed in the process of distillation, but none of these have been commercially successful. According to Professor Carmody, late Director of Agriculture, Trinidad, however, there seems every hope that the tree can be grown at a profit in the West Indies along these lines. The present high price of camphor, and the progressive depletion of the woods in Formosa, should act as the necessary stimulus. Professor Carmody states that the camphor tree, which is evergreen and of bushy growth, is well adapted to act as a wind-break to cacao plantations, where it could be used to replace the trees and shrubs of no economic value now used. It is reckoned that the bushes, after reaching the age of four to five years, could be clipped three or four times a year without injury.

---

## EDUCATIONAL.

**Summer School at Bangor.**—The third Summer School for teachers of Geography will be held at the Normal College, Bangor, from July 31st to August 14th, and will be conducted by Mr. Wallace E. Whitehouse. There will be short courses of lectures, map-work classes, and excursions in Snowdonia. Further particulars can be obtained from the Principal, Normal College, Bangor.

# NEW BOOKS.

## EUROPE.

*My Second Country (France).* By Robert Dell. London: John Lane, 1920. *Price 7s. 6d. net.*

Mr. Dell states that he has spent more than twelve years in France, and that his book is a study of some aspects of French life, attention being drawn to certain defects in French institutions and methods. His survey leads him to the conclusion that the country is nearing the end of a régime, and that a revolution is probable. The interest of the book does not lie in its study of French life, which depends to a considerable extent upon rather trivial personal experiences, and scarcely touches geography, save in such sapient remarks as that "circumstances differ in different parts of France." Rather is it to be found in the expositions of the social theory upon which the author hopes France will base a new revolution, and the curious admissions which this exposition entails. Thus for agriculture as an occupation and, necessarily, for the land-owning peasant, he has nothing but contempt. "Whatever the poets may say, the occupation of making holes in the ground is not an interesting one and has a deadening effect on the intelligence."

Similarly, and as inevitably, all the old conceptions of liberty have to be discarded. The "social revolution . . . will be the work of a minority . . . When has the majority ever done anything of itself?" The function of the latter is merely to acquiesce. If any of its members refuse this rôle, then, during the revolutionary period, they "must be excluded from the control of affairs . . . time cannot be spent on discussing the revolution itself with people that are opposed to it." On further examination, however, we find that even the "revolutionary minority" dwindles down to an autocracy of a few leaders, among whom the author apparently hopes to be. "The whole of progress depends on the triumph of individual intelligence over collective stupidity. One of the strongest arguments for socialism is that . . . it seems likely to facilitate the triumph of the intelligent."

The question of possible risks to the community during the expected revolution if the men "who make holes in the ground" are found chiefly among the anti-revolutionaries is not considered. That in France, of all countries, Mr. Dell should fail to appreciate the strength of the weapon in the hands of the "collective stupidity" of the cultivators is exceedingly curious. It is, however, fairly clear that he is of those who find it unnecessary to pursue the question of the origin of bread beyond the baker's shop.

*The New Germany.* By George Young. London: Constable and Co., Ltd. *Price 8s.*

Mr. Young tells us that he went to Berlin in January 1919, as correspondent for the *Daily News*, and that he had an experience of twenty years in the diplomatic service, followed by two years of war experience, beginning with political secret service and ending in the ranks. In this book he displays an intimate acquaintance with the internal affairs of Germany, and with the situation of parties in that country after the outbreak of the revolution, which very few foreigners can lay claim to. As regards the revolution, his attitude throughout is that of *advocatus diaboli*, and his main theme is to prove that in not supporting the party of revolution in the struggle which took place between the propertied classes and the proletariat, in which the latter were worsted, the Allies have been

putting their money on the wrong horse. He is scathing in his condemnation of the work of the Supreme Council of the Allies and of their policy in framing the Treaty of Versailles. He says that "anyone who spent the first six months of 1919 in Berlin and the big German towns would have seen easily enough how it was that, in spite of military occupations and religious thanksgivings, and bonfires and bonuses all round, we were not winning the war but losing it." The terms of the Treaty are uncompromisingly condemned:—"it has no elements either of permanence or peace, because it runs counter both to facts and forces, both in the region of national and in that of international relationships" (p. 224). In this, as in other matters, Mr. Young is very contemptuous of British ignorance of European affairs—"Our Edwardian England of to-day"—(why not *Georgian*?)—"knows as little of the real conditions of Central Europe as Elizabethan England knew of Central Africa." He argues (p. 236) that the German scheme for a League of Nations was in every respect better than that of the Allies, and he contends for the immediate admission of our late enemies to the League.

Mr. Young was in personal touch, as a witness, if not also as a participant, in the fighting which took place after the revolution between the various factions in Germany, and he was in the midst of it at Weimar, Halle, etc., as well as in Berlin. The pictures which he draws of this internecine strife appear—perhaps inevitably under the circumstances—too confusing to convey to the reader a clear idea of that side of the political situation in Germany during the summer of 1919, but he makes it plain that his sympathies are always with the proletariat as against what he calls the party of reaction. "The strength of the German Revolution," he says, "is in labour; its weakness is in the land," and he believes that in a system of government through industrial councils—(*Räte*)—lies the salvation of Germany from the abyss of bankruptcy and Bolshevism into which she threatens to sink and to drag the whole of Europe along with her.

Whether we agree with Mr. Young or not—and there are many who will be hostile to his views as well as to his manner of expressing them—no one can read his book without getting valuable light on a number of matters connected with the internal condition of Germany of to-day. In a lengthy appendix of sixty pages is the German Constitution which was drafted by Dr. Hugo Preuss, Professor of Public Law in the Commercial University of Berlin, and Minister of the Interior in the first Coalition Government. It passed its third reading in the Assembly on 31st July 1919.

*The Black Sheep of the Balkans.* By Leland Buxton. With an Introduction by Lt.-Col. the Hon. Aubrey Herbert, M.P. London: Nisbet and Co., 1920. *Price* 4*s.* 6*d. net.*

Mr. Buxton's title is, we gather, ironical, for his object is to suggest that no single Balkan people has a monopoly of the virtues, and that in the matter of outbursts of savagery none has any great right to reproach the others. He protests against the excessive partisanship displayed by some sympathisers with the individual peoples, and urges that our endeavour should be rather to moderate than to increase the passions and ambitions of the Balkan peoples. Believing—though as we think on doubtful grounds—that the Bulgarian case has not been fully presented to the British public, he defends that people against some of the attacks made upon it by propagandist authors.

Mr. Buxton further, no less that Colonel Herbert in his Introduction, attacks the terms of the Peace Treaty, and both make suggestions which they consider would increase the prospects of future harmony in the area. Their proposals, however, differ in more than one respect. Colonel Herbert says that the policy

of destroying the treaty of San Stefano has been a tragedy to all concerned. Now that treaty gave the whole of Macedonia to Bulgaria, with the exception of the port of Salonika and the Chalcidic peninsula. But Mr. Burton says that the manifest destiny of Macedonia is autonomy under the Yugoslav flag. He considers that it is essential that the whole Vardar Valley, with Salonika, should go to the Yugoslavs, and minimises the importance of Fiume for the latter. Colonel Herbert thinks Salonika should be made an open port, but should remain under Greek rule, and that Macedonia should now be autonomous, with either an American or a neutral governor. Again, Colonel Herbert attacks most of the Great Powers, but especially France, for having financial interests in the Balkans, and allowing these to influence their foreign policy. But Mr. Buxton urges that the Bulgarian treaty should be modified, because it will, he thinks, injure British trade with the Balkans. If two writers, contributing to the same book, and enjoying all the freedom of irresponsibility, cannot agree, it is obvious that the problem is very complex, and Colonel Herbert's very bitter attacks on the Peace Conference, and on its individual members, seem difficult to justify.

The Peace Treaty as it stands is admittedly the result of a compromise; that compromise, Mr. Burton thinks, should have taken another form. He sees clearly that so long as ill-will exists between Italy and Yugoslavia there will always be the risk that the hope of obtaining Italian support for her claims will prevent Bulgaria from accepting the inevitable. He sees also that the best hope of future peace lies in a reconciliation between Yugoslavia and Bulgaria, and hopes that the Croats may play the part of mediators. His conclusion therefore seems to be that Bulgaria should be placated at the expense of Greece, in accordance with that revised version of the Christian ethic which decrees that when your enemy asks for your ally's cloak you should offer his coat also. Both Mr. Buxton and, even more emphatically, Colonel Herbert praise the extra-territorial Greek at the expense of the Greeks of the kingdom, and appear to deduce from the comparison the need for contracting the frontiers of the Greece of the treaty. But the Greeks outside their own country, owing to their business acumen and high degree of individuality, have often tended, especially when settled in states of relatively low organisation, to play the same part which the Jews and the Armenians play in Eastern Europe and the Near East generally. If the establishment of both Jews and Armenians in lands of their own is to be the cure for the baiting of both peoples, it seems doubtful policy to draw the frontiers of the Greek kingdom so narrowly that a very large number of Greeks are left within more or less unstable States, where they may act as disintegrating forces. Surely a part of the Bulgarian hatred of Greece dates back to the time when, under what was largely nominal Turkish rule, not a few Greeks were successful in exploiting the Turkish subject peoples with an efficiency beyond the capacity of the political overlord.

Much that Mr. Buxton has to say can scarcely have too wide a publicity, and we hope therefore that his book will be read by many; but we are doubtful if his detailed proposals for the revision of the treaty will command very wide acceptance.

## ASIA.

*The New Map of Asia.* By Herbert Adams Gibbons. New York: The Century Co., 1919.

In this volume the author has followed up volumes on Europe and Africa by giving an account of European governments in Asia between 1900 and 1919. The various political divisions are treated separately, and a series of maps shows the

changes in the *status quo ante* that are described and criticised in the text. The point of view is that of the disinterestedly interested American who, willing to have his country hand back the Philippine Islands to the Filipinos, would like to see the victorious Allies, in good faith, resign their holdings to the native peoples who demand them. "European eminent domain has no justification unless one believes either (*a*) that our particular idea of civilisation is so essential to the world's happiness and well-being, that it must be built up and spread and maintained by force; or (*b*) that 'superior races' have the right to exploit, or at least to direct, the destinies of 'inferior races'; or (*c*) that the bestowal of material blessings upon people is adequate compensation for denying them the right of governing themselves." In view of the present affairs in our Indian Empire, in China, in what was Asiatic Turkey, etc., this volume deserves to be widely read and studied. Whether one agrees with the author or not, one can enjoy his forcefulness and admire his marshalling of facts.

*My Chinese Days.* By Gulielma F. Alsop. London: Hutchinson and Co. *Price* 10*s.* 6*d. net.*

This addition to the long list of books which have been written about life in China may be described as consisting of leaves from the life of a lady missionary doctor who began her work in Shanghai in the days following the revolution of 1911. The "Doctor Wilhelmina" of the story is avowedly the author herself; as far at least as the string of impressions and experiences of native life and character are concerned. The latter are, however, woven together by a story. There is nothing of religious propaganda in the book, but the sketches serve incidentally to convey to the reader some impression of the devoted and unselfish work of the medical missionaries in the cause of suffering Chinese women and children, and also of the training which they have given to native girls as hospital nurses and attendants. These girls, we may add, are apparently apt and clever pupils.

The tales of Chinese life are told with considerable dramatic power; and, if truth is stranger than fiction, they lose nothing in the telling. They furnish some interesting sidelights on Chinese life, illustrative of the customs which obtain at marriages, funerals, births, etc., though allowance may have to be made in places for their being described in very picturesque fashion. The scene, we may mention, is in and around Shanghai, and "Doctor Wilhelmina" is an American lady.

Miss Alsop deserves a word of praise for her photographic illustrations, which are well chosen and beautifully printed, and which will help to bring home to the reader something of the atmosphere of old China. As Miss Alsop says, the mills and factories which surround Shanghai to-day are but "a modern barrier to the ancient pastoral life (of the country) beyond. Life that persisted unchanged from the days of Abraham till now; that will persist for ever and ever."

*The Road to En-dor.* By E. H. Jones, Lt. I.A.R.O. London: John Lane, 1920. *Price* 8*s.* 6*d. net.*

The motto from Kipling,

> "Oh the road to En-dor is the oldest road
> And the craziest road of all!"

is the very appropriate one selected by Lt. Jones for the story of his spiritualistic doings in the prison-camp at Yozgad, by which he succeeded in deceiving the Turkish Commandant and his interpreter. Commenced as a pastime to beguile the tedium of captivity, the spook business developed into a most elaborate scheme

for escape, engineered by the author, whereby the Commandant and his staff were led off on a hunt for imaginary buried treasure. In this scheme Lt. Jones had as partner Lt. C. W. Hill, R.A.F., who also happened to be an accomplished amateur conjurer, and they both soon found that, in order to prevent their plans from leaking out, it was necessary that they should permit their brother officers to be deceived into thinking that the spiritualistic business was genuine, as well as the Turks. One is glad to know that the spook served the purpose of gaining privileges for the prisoners which they might not otherwise have obtained. Lt. Jones explains his *modus operandi* in great detail, and we cannot but feel that the sheer efforts of memory required call for admiration, as well as the skill in inventing plausible stories to form a basis for the marvels revealed by the "spirits." Some exception might, however, possibly be taken to the length of the reports of the imaginary communications. These reports contain enough of mystery to suggest the idea that Lt. Jones may possibly be indulging in a little mild leg-pulling at the expense of the reader, as well as of his own gaolers! Be this as it may, there is no question of the grim seriousness of the later experiences of the author and his friend in their feigned madness, which had to be kept up through the long ordeal of their confinement in the insane ward of the Haidar Pasha Hospital at Constantinople and under the keen eyes of the specialist doctors. The episode of the pretended suicide of the author and Lt. Hill by hanging (which came very near to reality) is also remarkable. They were at last repatriated as lunatics, and the irony of it was that the armistice with Turkey was signed and that they reached British soil only about a fortnight before their "healthy" fellow prisoners. Truly a remarkable story, and we feel at a loss whether to admire most the courage which carried the two men through their "mad" period, or the ingenuity which prompted and carried out the spiritualistic hoax. The photographic illustrations serve to convey an idea of the nature of the country round Yozgad in winter.

*The Handbook of Cyprus.* 8th issue. Edited by H. C. Luke, B.Litt., Commissioner of Famagusta, and D. J. Jardine, M.A., formerly Assistant Secretary to Government of Cyprus. London: Macmillan and Co., Ltd., 1920. *Price* 12*s. net.*

Cyprus was conquered in 1191 by the English King Richard I., Cœur de Lion, who sold it to the Knights Templars. After passing between 1192 and 1489 under eighteen sovereigns of the House of Lusignan, it fell into the power of Venice till the Turks won it in 1571. In 1878 the British, by Convention with Turkey, occupied it until Turkey declared war against Britain in 1914. Cyprus was then annexed to the British crown. Its population, according to the census of 1911, was 273,964, whereof 216,310 spoke Greek, and 55,213 Turkish, its leading religions being the Orthodox Greek Church and the Moslem faith. Cyprus has an area of 3584 square miles, whereof 700 are under protected forests yielding £60,000 in 1917-18, and the greatest length of the island is about 140 miles. It has acquired very great benefits since the British occupation began in 1878. Instead of one carriageable road in Turkish times, it has now a complete system of roads, and motor vehicles run between the principal towns. There are numerous hotels. A Government railway connects Famagusta and Nicosia (the residence of the British High Commissioner), and, while there was no Post Office under the Turks, there are now 65 Post Offices and 106 Rural Mail Stations, dealing, in 1917-18, with three million letters and parcels. Every district centre is connected by telegraph, and there is a cable between Cyprus and Egypt, with which country

good steamship communication was established. A sum of £700,000 has been devoted to public works throughout the island. "Education is now within the reach of all villages, whereas in 1878 it was difficult to find a village in which a single inhabitant could read or write. An enthusiasm for education has been aroused in the Cypriote, and he makes full use of the opportunities at his disposal."

Under the care and supervision of British medical officers, the general health of the inhabitants has been immensely improved, and Cyprus is "now as healthy and as pleasant a place as may be found in the Mediterranean. The incidence of malaria has been greatly reduced by the campaign inaugurated by Sir Ronald Ross in 1913. Hospitals, of which there were none in 1878, are now to be found in every district under the supervision of Government medical officers and in receipt of Government grants and free drugs. In Nicosia there is a large central hospital entirely maintained by Government."

The population of Cyprus showed, in 1911, an increase in thirty years of 88,000, and the estimated population in 1919 was 307,000. "In 1878 the imports and exports of Cyprus amounted in value respectively to £177,651 and £157,328, compared with £968,168 and £787,922 in 1917—which represents an increase of 550 per cent. on imports, and 500 per cent. on exports. The fact that there is hardly a village in Cyprus which has not repaired, enlarged, or rebuilt its church or mosque indicates that the villager shares with the townsman this growth of prosperity. In 1878 there was not a single printing press in the island; now fifteen newspapers are published—an eloquent proof of material and educational advancement." Yet "some of these newspapers not infrequently repudiate and deny the advantages brought to the island by the British occupation!"

This admirable handbook, which gives a complete account of the island, including much scientific information, and an excellent map, ought to be in the hands of every one visiting or interested in Cyprus, and should dispel the attempts made in some quarters to rob Britain of an island to which she has devoted so much care and expense, and in which she has conferred so many benefits on the native population.

*Through Deserts and Oases of Central Asia.* By Miss Ella Sykes, F.R.G.S., Author of *Through Persia on a Side-Saddle* and *A Home Help in Canada*, and Brigadier-General Sir Percy Sykes, K.C.I.E., C.B., C.M.G., Gold Medallist of the Royal Geographical Society, author of *A History of Persia* and *The Glory of the Shia World*. London: Macmillan and Co., Ltd., 1920. *Price* 21*s. net.*

In 1915 Sir Percy Sykes was appointed to take duty at Kashgar for Sir George Macartney, the well-known Consul-General, who was taking leave. Accompanied by his sister he travelled by Norway, Sweden, Russia, the Central Asian Railway, and finally on horseback across the Tian Shan Mountains to Kashgar, the journey occupying 36 days. Although headquarters were in Kashgar, official duties necessitated visits to other towns in Chinese Turkestan, and the authors were also able to see something of the Pamirs. One result of their seven months' residence is this handsome volume. The first part, written by Miss Sykes, gives an account of the journey out, residence in Kashgar, and travels in Central Asia. The second part, written by Sir Percy Sykes, deals with the geography and history of Chinese Turkestan, the manners and customs of the inhabitants, and concludes with a chapter on stalking the *Ovis poli*, the great sheep of Marco Polo. As might be expected, both parts are brilliantly written, and the book is an

admirable supplement to the standard works on Central Asia by Sir Aurel Stein. Miss Sykes has great powers of observation, and as she visited places where no European lady had preceded her, she records much that is novel, and even the familiar has a new interest when set forth from her fresh point of view. She gives vivid descriptions of the home life of the inhabitants, the position of the women, social functions, as well as incidents of travel. The book is well produced, profusely illustrated, has an adequate index, and two useful maps.

*Chance and Change in China.* By A. S. Roe. London : William Heinemann. *Price* 12*s.* 6*d. net.*

Under the above alliterative title Miss Roe recounts some of her experiences as a "born before" (teacher) amongst the people of post-revolutionary China. As for the change made by the adoption of republicanism, one may quote the familiar adage "plus ça change, plus ça reste la même chose," for, although the coast ports and some of the cities have taken on a veneer of Western ways, the changeless country and the rural population remain much where they were. Even in the towns, to take Miss Roe's account, the new spirit has not been able to effect the much-needed cleansing, and the inhabitants appear to be content to live their lives in the midst of the old, familiar, all-pervading dirt and decay. Miss Roe has travelled much in the provinces of the middle east, from Chekiang to the Hoangho, and also west to the ancient Tartar city of Signan Fu in Shensi, and during her residence in China she has enjoyed opportunities of knowing the inner lives of the people which are only vouchsafed to a missionary and a woman teacher. Her book is made up of a series of pictures having no special cohesion, but she is a keen observer, and, moreover, is gifted with a frank and vivid style of recording her impressions. She must have been called upon to face a good deal of hardship and discomfort, and even danger, from the bands of brigands who infested the country, but these are not obtruded, and we find no word of complaint or of self-pity.

The Chinese are confirmed euphuists, and many things are described in terms which are high-falutin' in an inverse ratio to the facts. Thus the loathsome army of beggars who, unfortunately, still swarm in every city, are called "the flowery ones," the maimed and deformed feet of the bound-footed women are "golden lilies," and so on. Silk-worms are spoken of as the "precious ones," and Miss Roe gives a rather fascinating account of a visit to a filature where the worms are hatched and the cocoons wound off. It seems that silk-worms have to be spoken of very respectfully in their presence, for "they are peculiarly sensitive and will take umbrage at any discourteous language, whereas polite phrases will work wonders and induce them to spin with a will." But this treatment does not last, and when they have finished spinning, the cocoons are plunged into a cauldron of boiling water. Very attractive too is Miss Roe's account of a visit paid to an incubator, primitive, but most efficient, where 60,000 eggs were hatched at one time and young chickens could be bought at ½d. apiece. What would our poultry fanciers in this country say to the price!

We cannot attempt a summary of Miss Roe's chapters, of which perhaps the most interesting deal with the conditions of New China. Education, and especially female education, does make progress, and schools on the most modern lines are in evidence in the larger towns, though the first enthusiasm shows signs of waning, and Miss Roe compares the progress made to that of the snail on the wall which climbs up five feet every day and slips back four at night. But in spite of that "it moves," and one cannot but welcome any improvement in the

condition of women in China, where their lot is, on the whole, a very sad one. The new "people's kingdom" as a whole Miss Roe likens to "painted cake," which is the native name for a thing that has come to nothing; but she finishes her book on a note of hope in which she says that "China—a house divided against itself, with many leaders and no ruler—stands in some ways where she has stood before, with one supreme difference: that she no longer considers the 'Middle Kingdom' the centre of all culture, and the only part of the universe that matters, but has widened her outlook and dreams and sees visions and cherishes ideals which some day no doubt will help to make her people one of the greatest nations of the world." Altogether this is a very illuminative book, and we do not hesitate to say that, in its own way, it is one of the best books on China which has appeared for a long time.

## AFRICA.

*The Gold Coast and the War.* By Sir CHARLES LUCAS. London: Humphrey Milford, Oxford University Press, 1920. *Price* 2*s. net.*

So very little, comparatively, is known by the general public of our old Crown Colony of the Gold Coast, and of the happenings there during the war, that one welcomes this pamphlet from the pen of Sir Charles Lucas. It is mainly concerned with setting forth the share which the colony took in warlike operations, and we are told that it is based upon the published reports, including the Governor's (Sir Hugh Clifford's) "most exhaustive message to the Legislative Council of October 28th, 1918." Situated as it is, sandwiched in between the French Ivory Coast to the west, and the quondam German colony of Togoland on its east side, the Gold Coast was necessarily involved in military operations from the very outset of the war. The story of how it acquitted itself is worth telling, and it is told by Sir Charles Lucas in his little book. In enumerating the contributions made by the colony in men, money, and materials for war service, the author points out that the parts played by the self-governing dominions and by India were on so great a scale that the modest contributions made by the smaller provinces tend to be overshadowed. This record therefore fills a useful place, and we gather from the preface that the intention is that this and any similar records to be compiled and published through the same channel will be "condensed and embodied in the large work on *The Empire at War* in which the Royal Colonial Institute and the Oxford University Press hope to give a comprehensive record of the co-operative effort of the Empire in the Great War."

*Zanzibar: The Island Metropolis of Eastern Africa.* By Major F. B. PEARCE, C.M.G., British Resident in Zanzibar. Pp. 419. Bibliography and map. London: T. Fisher Unwin, Ltd., 1920. *Price* £1, 10*s.*

Major Pearce has made good use of his spare time during his tour of office as British Resident in Zanzibar, and gives an interesting account of the Island Protectorate. The book is divided roughly into three parts. Part I. is a carefully compiled history of the development of the East African and South Arabian littorals in their relation to Zanzibar, from the first century of the Christian era to modern times. In so far as ancient and mediæval history are concerned the author has utilised fully the material at his command, and the narrative, though somewhat loosely put together, is valuable as showing how the various stages of development were arrived at.

Up to the arrival of Seyid Said, in 1828, Zanzibar has but little modern

history worth recording, as for many years it was merely a port of call with a safe anchorage, where water and fresh produce could be obtained. That is practically all there is to be said. Its rise as the metropolis, for the time being, of Eastern Africa commenced in the earlier part of the nineteenth century, when the question of the opening up of the Central African continent began to occupy public attention in Europe and America, and explorers found in Zanzibar a convenient base for their expeditions. For a long time prior to this, but more particularly during the later part of the eighteenth century, the Arab trader, in his search for ivory and slaves, had slowly but surely penetrated into the African hinterland, and had established bases at various stages between the coast and the great lakes, and even beyond into the far-distant Congo. At the time when European exploration began to be pressed, caravans with their necessary supplies and credits could be arranged only through the Arab headquarter agencies in Zanzibar. Independent enterprise was foredoomed to failure. But Tippu Tib and other slave-dealing firms, which were to Central Africa what Cook's Tourist Agency is to Europe, could and would arrange porters and supplies for the traveller in return for substantial payment rendered; the terms usually being a deposit equal to half of the approximate cost in advance, the balance to be paid on completion when the accounts were made up. Money poured into Zanzibar from Europe and America for this purpose, and the prosperity of the town increased accordingly. Seyid Said and his successors refrained from interfering with this easy source of revenue, though they must have foreseen that the European invasion would ultimately undermine their power on the mainland. Added to this was their wise policy of keeping Zanzibar a free port, with little or no customs' restrictions, which made it for the time being the depot and distributing centre for the East African Coast ports. From Seyid Said's accession to 1890, when the Anglo-German Agreement defined the British and German spheres of influence, were the great days of Zanzibar, when it was truly the metropolis of Eastern Africa, when explorers came and went with their tales of success or failure; whilst the small craft of the eastern seas crowded its harbour in their work of distribution of European and Indian merchandise and the collection of produce for Marseilles and elsewhere. This is the time when modern East and Central African history was made, and it is a pity that Major Pearce does not tell us more about it, for the story would be of much more interest than the dry bones of history and official records he places before us.

Another aspect he does not make clear, and that is that the day of Zanzibar as "the metropolis of Eastern Africa" is past. From about 1895, when the British and German Governments commenced the active administration of their spheres of influence, Zanzibar began steadily to decline, and trade centred more and more at Mombasa, Dar es Salaam, and other East Coast ports, which resulted in most of the leading firms transferring their headquarters to the mainland. The profitable transit trade is disappearing rapidly and local trade is following suit. Seyid Said and his successors, with their dream of empire, and of Zanzibar as the hub of the East African universe, have gone. Gone, too, has Zanzibar's glory with its busy marts and the tradition of courtly hospitality. Remains a Sultan, well under official control with but a vestige of his former power, and a clean but decadent little town which will soon be dependent upon the clove crop and its water supply to attract passing vessels. The outward appearance is unchanged, but the shell only remains; the kernel has gone.

Part II. is devoted to a description of the island in its various aspects, its inhabitants and the town. Other chapters deal with the clove crop, on which the prosperity of the island now largely depends, the local and foreign representatives,

and the island of Pemba. There is also a chapter on Natural History by Mr. Mansfield Adams. Part III. is devoted to a description of ancient historical ruins. The island description is pleasantly written, but soon becomes tiresome on account of its endless repetitions. All there is to be said could easily have been disposed of in one chapter, instead of three as at present. In his two chapters on the town Major Pearce views Zanzibar through rosy-tinted spectacles, and the traveller, whilst recognising the landmarks, will find it difficult to associate reality with the description given. Those of us who have known it during past years remember Zanzibar as a pleasant break on the East Coast journey which wiled away a few days. But a few days were sufficient, for one lived at all seasons in a state of discomfort from the hot, damp, enervating atmosphere, to say nothing of the mosquitoes, whilst the sanitation, though doubtless improved of late years, still left much to be desired. His description of the town's prosperity might have been applicable a few years ago, but hardly applies to existing conditions. The chapters on the inhabitants are particularly interesting, and the author's sympathetic attitude to the African native will appeal to all who have had personal experience in African administration.

Of the part played by Zanzibar during the Great War Major Pearce maintains for the most part a discreet silence. Perhaps it is better so, for it was common knowledge to all in East Africa at the time that the majority of the Arab and many of the British Indian traders in the island favoured the German cause, and the place was consequently a hot-bed of intrigue. It must have been a trying time both for the Sultan and the British Resident, and that may be why Major Pearce has so little to say about it.

In making the above criticisms the reviewer has no intention of detracting from the value of the book, which is good stuff, and is a valuable contribution to the literature of our East African Empire.

*Profit and Sport in British East Africa.* By Captain the Lord Cranworth, M.C. London: Macmillan and Co., Ltd., 1919. *Price* 21*s. net.*

It seldom happens that the writer on any of our Colonies is able to discuss both sport and economic questions, but Lord Cranworth in this volume has done so very effectively. He deals first with the history of British East Africa, which he traces from the eighth century. Then, after an abortive rising against the Caliph Said, the followers of the great-grandson of Ali, the prophet's cousin and son-in-law, who was killed, are said to have fled to the coast of what is now known as British East Africa. During the tenth century Mombasa was established, and is said to have been a magnificent city in the fourteenth century. The Portuguese arrived in 1498, and Mombasa was captured by them in 1500 and remained in their undisputed possession for one hundred and fifty years, after which it passed into the hands of the Muscat government.

The Protectorate extends from Umba to the Juba River and inland as far as the borders of Uganda. It has an area of about 246,822 square miles, or double that of the British Isles, and a population estimated at 2,807,000, including 5362 Europeans and 17,000 Asiatics. It consists of seven provinces, each under a provincial commissioner, with two chief capitals at Mombasa (population, 30,000) and Nairobi (population, 14,000). The only mineral of commercial importance is the crystalline soda found in Lake Magadi, which has been estimated to amount to 200 million tons, valued at £50-60 per ton. Traces of gold, very small diamonds, and mica have also been found. The author considers that agriculture will give the best return, and mentions sheep, pigs, and ostriches as profitable live-stock, while he considers that the cultivation of flax will outstrip all other crops.

The labour question, however, presents a difficulty. The native is not too willing to work, and within the reserve all manual labour is performed by women and children, while outside only the sickly, the undersized, and the old men are available. "The class which in a civilised state would be regarded as the breadwinners are here represented by brawny savages, covered with grease and oil and carrying enormous spears. This very large body do nothing, and exist on the efforts of their womankind and weaker brethren."

All types of settlers are welcome except the wastrel and degenerate, but the man who wishes to start for himself should possess a capital of at least £2000. There are extensive forests of excellent timber. For many years the great attraction of this part of Africa was sport, and at present large tracts of land are reserved for wild animals. There are still from sixty to seventy different kinds of wild animals, amongst them being the lion, elephant, leopard, waterbuck, gazelle, giraffe, lynx, jackal, hyæna, wild dog, and crocodile.

An interesting chapter is that devoted to a sketch of the war with German East Africa, and the active and successful part taken in it by the Colony. The volume contains two good maps and much valuable information, especially for those who propose to settle in the country.

## AMERICA.

*A Travers la Forêt Brésilienne.* Par Emile R. Wagner. Paris: Felix Alcan, 1919. *Price* 6 *fr.*

We reviewed here in vol. xxxiv., p. 316, an earlier book by M. Wagner. Like it the present volume forms part of the Bibliothèque France-Amérique, published by a committee whose aims are to increase sympathy and intercourse between France and the countries of South America.

The book consists in part of an account of a visit to the wooded *massif* of the Serro Verde in the State of Parana, and in part of a general description of the forests of Brazil, their fauna, flora, and inhabitants. The book is illustrated by seven pictures of forest life and a sketch-map showing the distribution and divisions of the forested areas. As his previous book showed, M. Wagner is a bitter opponent of German influence and colonisation in South America. Readers in this country will, however, read his book rather for its descriptions of scenery and life in the forest zones than for its political discussions.

Some of these descriptions are exceedingly vivid and fresh. We may note especially a brief account of the life of the forest Indians, of their natural enemies and means of defence, and of their modes of food-getting. As in the tropical forest everywhere, we find that the insects and their allies are the most dreaded foes. The South American Indians find protection not only in their knowledge of medicinal herbs—one of which we learn, owing to its aromatic odour, has when rubbed over the body the power of diminishing liability to attack by ants and mosquitoes—but also in their acute senses. Thus they succeed in avoiding many of the dangers to which Europeans expose themselves. The Indian takes also a certain revenge upon the insect world in forcing it to yield a not inconsiderable part of his food supply. Beetle larvæ, raw or cooked, constitute one of his great delicacies; "ants' eggs," that is the larvæ and pupæ, are relished so much that the stings of the adults are braved. In this case cooking is essential to kill the adults which are mixed with the pupæ, and the latter are served like grains of rice. Not only is honey eagerly sought after, but the stored pollen "bee bread" and the white larvæ are not disdained. Birds and small mammals are shot

with bone or agate-tipped arrows; but the tapir, the "grande bête" of the Brazilian forest, is immune to these weapons, and is trapped in its forest pathways by a crude but efficient trap. Poisonous snakes, though among the great enemies of the naked Indian, are also prized as food, the head being cut off, and the body roasted or grilled over hot ashes.

## POLAR.

*Has the North Pole been Discovered?* By Thomas F. Hall. Pp. 540. Maps, charts, diagrams and tables. Boston: R. G. Badger, 1920. *Price* $2.50 *net.*

The author of this book, formerly a master mariner in the United States merchant service, revives the Peary-Cook controversy. He analyses in great detail the observations and published accounts of the two claimants to the discovery of the North Pole. Even if a little diffuse, it is a laborious and painstaking piece of historical research which merits the attention of those interested in the controversy. Mr. Hall's conclusions are that Peary did not reach the North Pole, and that there is nothing in Cook's claim that can be "truthfully discredited." In any case the narrative of neither Cook nor Peary added anything to our geographical knowledge of the polar basin unless Cook's Bradley Land is established. We must look to Amundsen on his present expedition bringing the first results of scientific value since the days of Nansen from the region of the North Pole. The volume is well illustrated with maps and diagrams, but the copy we have received is faulty, sixteen pages being omitted.

## GENERAL.

*Mountain Memories: A Pilgrimage of Romance.* By Sir Martin Conway. London: Cassell and Co., 1920. *Price* 21*s. net.*

Sir W. M. Conway is one of our leading authorities both on art and on mountaineering; his published works on these subjects already exceed a score. This volume, which he calls in his sub-title "A Pilgrimage of Romance," might also be fittingly termed the autobiography of a mountaineer. In it he traces the origin and development of his love for mountains, and describes how he has been led, first to the exploration of the lesser known districts of the Alps, then far away over the waters of the Globe to wider and wilder regions of Europe, Asia, and America—to Spitsbergen, the Karakorams, and the Great Andes of South America, from Bolivia to Terra del Fuego.

Everywhere he went as an explorer. The unknown country, the unclimbed peaks, the untraversed glaciers were the objects of his quest. The book is thus in a sense a résumé of all his former works on climbing. It is, however, much more than a mere résumé. As an artist who is building up a great picture will use portions of his many sketches in order to work them into the composition, so Sir Martin Conway's latest book is a picture—an admirably painted one—of which the main theme is the romance of mountain travel and exploration.

Nothing is perhaps so difficult as for a writer to draw, in such a manner as to be readily comprehended by those wholly ignorant of them, scenes and incidents which are loved and familiar to himself. A good deal must be and is better left to the imagination. The author generally adopts the plan of describing how these scenes and incidents affected himself personally, and thus he makes an appeal to many who might otherwise have failed to find an interest in those desert places of the earth where the mountain explorer must perforce nowadays wander.

Sir Martin Conway's mountain bent was formed early. His first mountain

ascent was made at the age of seven, and was to the summit of the highest hill in South Britain, Snowdon. It is true that the latter part of the ascent was made on horseback, clasping the waist of an obliging aunt; but the mountain, and the clinging clouds, in which the party found themselves enveloped, made an enduring impression upon the child. While still a schoolboy he was taken by his parents to the Alps. There in Alpine resorts he watched, and admired, with almost equal awe and reverence, the then giants of the Alpine Club, and the giant ice peaks which they had the hardihood to ascend. Somewhat later he climbed these great ice peaks himself, but though familiarity somewhat diminished the awe, it never staled their "infinite variety" to him.

In 1891 he heard the call of the East, and with two other famous mountaineers, Mr. D. W. Freshfield and Mr. A. F. Mummery, an expedition to climb Kangchenjunga was planned. Finally, however, Mr. Freshfield was unable to start, and Mummery and Conway finding their plans incompatible, separate expeditions were arranged. Mummery, with Collie and Hastings, attacked the splendid peak of Nanga Parbat, on which he perished; the story of the expedition is told by Professor Norman Collie in his book *Climbing on the Himalaya*. Conway took a party to the Hispar and Biafo glaciers in the Karakorams in quest of the mighty K2, in the year 1892. A deal of travel and exploring work was done, but naturally not much high climbing. The highest point gained was on the ridge of a mountain which Conway named the Golden Throne. He called this Pioneer Peak, and his barometer made the height 22,600 feet. Barometers or boiling-point thermometers are however unreliable height measurers, and the real height of the peak is about 1000 feet lower. In 1894 Conway made a trip across "The Alps from end to end," which in book form has proved the most popular of his works. In 1896 and 1897 we find him making the first crossing of Spitsbergen and ascending some of the rocky hills which project through its interior glacial covering. The following year, 1898, and again in 1900, the far-off Andes of Bolivia were the scene of his explorations. Reaching great heights, both by mule and by train, is here easier than elsewhere in the world, but the weather on the great peaks, as Whymper also found, is usually of the worst description. The locomotive at the Oroya Pass takes the traveller up to a height exceeding that of Mont Blanc. The effects of "mountain sickness" on the untrained are here very evident. In Bolivia the great peak of Illimani was climbed. This is over 21,000 feet in height. On a slightly lower peak, called the Pico del Indio, Conway found a rotting piece of native cord. Thus is confirmed the tradition that this peak was ascended by a greatly daring and impious Indian, who was slain by the offended deity of the mountain, for, like all great peaks throughout the world, Illimani was of old divine. In an attack on Sorata, the expedition just failed to make the summit owing to the bad condition of the snow.

Sailing to Valparaiso, Conway visited and ascended the highest of the New World's peaks, the mighty Aconcagua, about 23,000 feet. The mountain had been climbed for the first time the previous year by two members of the Fitzgerald party, Zurbriggen and Vines, and Sir Martin Conway explains that he purposely refrained from standing on the highest point for fear of interfering with the prestige of Fitzgerald's book, a truly sporting action on his part. Conway's last expedition was an attack on the Fuegian mountain called Sarmiento, part of the Darwin Range in the peninsula of Terra del Fuego. The weather in this region of dripping forests, winding fjords, and icy mountains is nearly always bad, and at about 5000 feet the party encountered a snowstorm, and were forced to retreat.

The book is well got up, and is illustrated by sixteen full-page plates of photographs. Those of the Alps are the most beautiful and artistic work of Mr. Sidney

Spencer ; those of Spitsbergen are by Professor Garwood, the rest mainly by the author himself.

In discussing the Matterhorn, Sir Martin Conway considers that it should now be called the Cervin, its southern designation, but its modern German name is crystallised and preserved in an enormous mass of the tradition and literature of mountaineering, and is not in the least likely to be altered on account of a passing event, such as a war, however great. He suggests that Cervin is a corruption of Mons Silvius. The present reviewer thinks that this is not in the least probable. The letter *R* is one of the strongest and most enduring of consonants in every European language except *modern* English, and we must look for an origin which contains this letter. The old language on both sides of the Matterhorn, or Cervin, was not German or French, nor yet Italian or Latin, but Romansh. If we turn to the Engadine, where the language is still spoken, we find there a mountain called the Piz Tachierva : this is most probably also the old name of the Matterhorn or Cervin and for the same reasons.

To mountain and nature lovers of all kinds, Sir Martin Conway's latest book will prove a delight. He has been wonderfully successful in threading all the pearls of his world-wide experience on the binding cord of his dominant motive, Romance. HAROLD RAEBURN.

*Forty-four Months in Germany and Turkey: February* 1915-*October* 1918. *A Record of Personal Impressions.* By HAR DYAL, M.A. London : P. S. King and Son, 1920. *Price* 3*s.* 6*d. net.*

The author of this book, according to the biographical note furnished, has had a stormy career as an active leader of the Indian Revolutionary party. After two years at Oxford, he resigned his Government scholarship, and finally settled in San Francisco in 1911. In March 1914 he was arrested by the United States Government with a view to deportation as an undesirable alien, but escaped to Switzerland, and after the outbreak of war joined the Indian National Party which worked at Berlin. The book is a record of the complete change which his opinions underwent as a result of his personal experiences during the war period. Not only has Mr. Dyal now no good word for either the Germans or the Turks, but he is convinced that the Eastern peoples as yet are incapable of self-government. "The upper and middle classes of Egypt, India, and Persia cannot administer successfully without European control and guidance." "The British (and the French) Empires . . . must be preserved in their integrity for a long time to come." "The interests of the peasants and working men of Asia require peace, order, justice, education, organisation, and permanent contact with Europe and America. A purely national administration in an oriental country . . . cannot secure these blessings for the people. They must be trained, controlled, and inspired by European officials."

Some readers will perhaps doubt how far a "conversion" so radical and complete is destined to last, but it is clear that many of the Orientals in Berlin were deeply wounded by the German "nigger-politik." As regards the Turks, Mr. Dyal makes effective use of a personal experience in Constantinople, where he was witness of one of the frequent street fires—"A land governed by fools cannot prosper." "There is nothing but dirt, dead dogs, and scheming rascals in Stamboul."

Apart from the story of the author's change of mind, the book gives an interesting picture of the relations of official Germany during the war to the "Oriental patriots" who found their "Mecca" in Berlin.

## EDUCATIONAL.

*The New Era Globes.* Hove: E. M. Walters and Co. *Price 4s. each.*

We have received three samples of these globes, viz. the Political Divisions of the World and chief Trade Routes, Natural Vegetation Regions, and a third coloured to represent orographical and bathymetrical features. The material is india-rubber, so that each globe is like a child's brilliantly coloured ball. To a practical teacher the vision of a class-room populous with bouncing balls is somewhat disturbing, and we are a little doubtful of the scholastic value of these globes. A child who could resist bouncing one is not to be envied, and in any case accidents would be frequent. Cheap, handy little globes are very desirable, but we prefer them with some stable framework. The political globe presents some inaccuracies. Crete, Easter Island, and Spitsbergen are not British, nor is Iceland now Danish.

*Macmillan's Graphic Geographies: The British Empire.* By B. C. Wallis, B.Sc., F.R.G.S. *4to. Price 1s. 6d.*

This is a useful publication of 32 pages. It contains thirty maps in black and white, and three coloured (orographical) maps of Canada, South Africa, and India respectively. Numerous exercises are provided, and at the end of the book are found four test papers. The last sections are devoted to the growth of the British Empire before 1840, from 1840 to 1890, 1890 to 1914, and after 1914.

In conjunction with the same author's geographical exercise book on the British Empire, the book should prove particularly suitable for pupils in intermediate and secondary schools who are studying geography up to lower leaving certificate standard.

*A New Geography of Scotland.* By Marion I. Newbigin, D.Sc. (London), F.R.G.S. London: Herbert Russell, 1920. *Price 3s. 6d. net.*

This new school text-book, written for the upper classes of secondary and higher grade schools, differs widely from the stereotyped school-book. The home country is perhaps the least studied of the well-known countries of the world, and yet the one of which ignorance can be least excused. Such ignorance is due in large part to the lack of suitable text-books, and if we say that Dr. Newbigin has done for senior pupils what she did so admirably for junior classes (Oxford Press, 1913), we do her the scantiest justice. Her new book is a model treatment of Scotland, suited to the maturer years of pupils who have already some notion of Scottish topography. No important aspect of the subject is neglected, and all are rationally presented so as to excite thought and stimulate further inquiry.

The book is divided into two parts. In the first the physical conditions of surface, climate, and biogeography are described along anthropogeographic lines. Cause and effect are logically linked, and the three great regions as well as the surrounding waters of our native land are described in such a manner as to be easily assimilated by the pupils. In the second part the thoroughness of the treatment is still more manifest. The inhabitants are traced back to prehistoric ages; the origins introduce the pupil to the interesting subjects of archæology and anthropology without the mention of either name: the highlander and lowlander are studied in the light of the most recent discoveries. Then follows a short but adequate introduction to place-names, always an engaging subject. An up-to-date

series of sections on Scottish industries, agriculture, fisheries, etc., bind the two parts together, and prepare the way for the chapter on industry and trade, which leads naturally to an account of centres of population and communications.

The outstanding notes of the book are freshness of treatment, clarity of writing, and digestibility of matter; to teacher and pupil alike it will come as a re-awakening to the possibilities of the new geography. Dr. Newbigin has been fettered by no scholastic traditions, but has based her work on the map, official reports, and the wide reading of an independent geographer. The book might well form the basis of a larger treatise which should serve the Scottish people as the late Vidal de la Blache's does his countrymen.

*Technic of Surveying Instruments and Methods.* By Walter Loring Webb, C.E., and John Charles Lounsbury Fish, C.E. New York: Wiley and Sons. *Price* $2 *net.*

The object of this book is to explain to the student of surveying the kind of equipment he requires, and to discuss such subjects as the use of instruments, methods of observing and adjusting, constructing scales, computing angles, dealing with errors, the features of topographic projections, and completing the map. The student who intends to master the art of surveying in all its details will find much useful information in this volume. It also deals with the subject of map-reading, and the student is provided with a number of useful tables and formulæ.

*A Geography of Asia.* By Joseph Martin, B.Sc. London: Macmillan and Co., Ltd., 1919. *Price* 5*s.*

This latest addition to Messrs. Macmillan's well-known series of Practical Modern Geographies has all the excellent qualities that mark the previous volumes of this valuable series. The author is to be congratulated on the painstaking accuracy and comprehensiveness of his work. Each lesson is preceded by a set of statistical exercises and questions, then follows a general description of the region, and the lesson concludes with a set of thoughtful questions that test the student's grasp of the whole lesson. The whole work is thoroughly practical, the chief aim being to show under what condition man lives in the various regions and to bring out clearly the geographical and political controls. The book is especially strong on the economic side, much attention being paid to productions, industries, and commercial communications. A feature of the book is the excellent treatment of British India. Numerous examination questions, maps, diagrams, illustrations, and indexes serve to make this one of the most complete geography books it has been our privilege to look into. Nothing better could be put into the hands of students preparing for public examinations in modern geography.

*Map-Reading Made Easy.* By Capt. C. C. Esson and G. S. Philip, F.R.G.S. London: Philip and Son, 1919. *Price* 3*s.* 6*d. net.*

This little book of ninety pages appears to have been written primarily for the use of officers and men on active service. Map-reading has been strangely neglected in this country, and, while happily the war is now over, every student of geography and all who study maps will find much valuable information here.

How to measure distances, slopes, contours, and to make scales, sections, etc., is fully explained both in the text and by excellent diagrams, as is also the use of simple instruments for taking observations and the chief methods of plotting the result.

## BOOKS RECEIVED.

*Orkney and Shetland.* By J. G. F. Moodie Heddle and T. Mainland. With Maps, Diagrams, and Illustrations. 8vo. Pp. xii + 167. Cambridge: University Press, 1920. *Price* 4*s.* 6*d. net.*

*Dumbartonshire.* By F. Mort, D.Sc., F.R.S.G.S. With Maps, Diagrams, and Illustrations. 8vo. Pp. viii + 155. Cambridge: University Press, 1920. *Price* 4*s.* 6*d. net.*

*Australian Meteorology: A Text-Book, including sections on Aviation and Climatology.* By Griffith Taylor, D.Sc., B.E., F.R.G.S. 8vo. Pp. xi + 312. Oxford: Clarendon Press, 1920. *Price* 12*s.* 6*d. net.*

*By Sea and Land: Some Naval Doings.* By Lieut.-Commander E. Hilton-Young, M.P. 8vo. Pp. 362. London: T. C. and E. C. Jack, Ltd., 1920. *Price* 12*s.* 6*d.*

*The Harvest of Japan: A Book of Travel, with some Account of the Trees, Gardens, Agriculture, Peasantry, and Rural Requirements of Japan.* By C. Bogue Luffmann. 8vo. Pp. xiv + 276. London: T. C. and E. C. Jack, Ltd., 1920. *Price* 12*s.* 6*d. net.*

*Flora of Jamaica: Dicotyledons.* Vol. iv., Part ii. By Wm. Fawcett, B.Sc., and A. B. Rendle, D.Sc. 8vo. Pp. xv + 369. London: British Museum, 1920.

*The Day of the Crescent: Glimpses of Old Turkey.* By G. E. Hubbard. 8vo. Pp. x + 242. Cambridge: University Press, 1920. *Price* 15*s. net.*

*Marvellous Mesopotamia: The World's Wonderland.* By Joseph T. Parfit, M.A. 8vo. Pp. 259. London: S. W. Partridge and Co., Ltd., 1920. *Price* 6*s.*

*The Bantu, Past and Present: An Ethnographical and Historical Study of the Native Races of South Africa.* By S. M. Molema. 8vo. Pp. xix + 398. Edinburgh: W. Green and Son, Ltd., 1920. *Price* 25*s. net.*

*The Eastern Question and its Solution.* By Morris Jastrow, Jr. With a Map of the Near East. 8vo. Pp. 158. Philadelphia: J. B. Lippincott Company, 1920. *Price* 6*s. net.*

*Norwegian Self-Taught by the Natural Method with Phonetic Pronunciation, Thimm's System.* Sixth Edition. Revised by Illit Gröndahl. London: E. Marlborough and Co., 1920. *Price* 3*s. net.*

*India at the Death of Akbar: An Economic Study.* By W. H. Moreland, C.S.I., C.I.E. 8vo. Pp. xi + 328. London: Macmillan and Co., Ltd., 1920. *Price* 12*s. net.*

*Seaward Sussex: The South Downs from End to End.* By Edric Holmes. 8vo. Pp. xxxiii + 315. London: Robert Scott, 1920. *Price* 7*s. net.*

*Historical Geography of Britain and the British Empire.* Book i.: *The Making of England, Empire, and the Establishment of Empire*, b.c. 55 *to* a.d. 1815. By Thomas Franklin, A.C.P., A.R.S.G.S. 8vo. Pp. viii + 216. London: Macmillan and Co., Ltd., 1920. *Price* 2*s. net.*

*The Motor Cycle Route Book: With Road Maps of England and Wales, Scotland, and the London District.* The Items of Interest on the Main Roads are described by Chas. G. Harper. 8vo. Pp. 320. London: Iliffe and Sons, Ltd., 1920. *Price* 5*s. net.*

*The Future of Bohemia.* By R. W. Seton-Watson. Pp. 31. London, 1915.

*Bohemia.* By Count Lutzow, D.L.. Pp. 55. Prague, 1911.

*The First Year of the Czecho-Slovak Republic.* By Alexander Broz. Pp. 80. London, 1920. *Price* 1*s.*

*The Czecho-Slovak Republic.* By R. W. Seton-Watson. Pp. 16. 1919.

*Great Britain and the Czecho-Slovaks.* By VLADIMIR NOSEK. Pp. 14. Prague, 1919.

*Thomas G. Masaryk, President of the Czecho-Slovak Republic.* By Dr. JAN HERBEN. Pp. 14. Prague, 1919.

*Handbooks prepared under the direction of the Historical Section of the Foreign Office.* Vols. I.-IX. (56 Parts). London: H.M. Stationery Office, 1920.

*Outdoor Geography.* By HERBERT HATCH, M.Sc. 8vo. Pp. xx+121. London: Blackie and Son, Ltd., 1920. *Price* 3*s. net.*

*L'Esthonie: Les Esthoniens et la Question Esthonienne.* Par M. MARTNA. 8vo. Pp. 268. Paris: Librairie Armand Colin, 1920. *Prix* 5 *fr.*

*Holiday Rambles in North Wales.* By ARTHUR L. BAGLEY. With Nineteen Illustrations. 8vo. Pp. 203. London: Skeffington and Son, Ltd., 1920. *Price* 6*s. net.*

*Byways in Berkshire and the Cotswolds.* By P. H. DITCHFIELD, M.A., F.S.A. 8vo. Pp. xii+314. London: Robert Scott, 1920. *Price* 8*s.* 6*d. net.*

*The Blue Guides:* 1. *London and its Environs.* Edited by FINDLAY MUIRHEAD, M.A., F.R.G.S. Fourth Revised Impression. 30 Maps and Plans. 8vo. Pp. xlvi+573. London: Macmillan and Co., Ltd., 1920. *Price* 10*s. net.* 2. *England.* Edited by FINDLAY MUIRHEAD, M.A., F.R.G.S. 75 Maps and Plans. 8vo. Pp. lxxii+598. London: Macmillan and Co., Ltd., 1920. *Price* 16*s. net.*

*Belgium: The Making of a Nation.* By H. VAN DER LINDEN. Translated by SYBIL JANE. 8vo. Pp. 356. Oxford: Clarendon Press, 1920. *Price* 7*s.* 6*d. net.*

*The Cruise of the "Falcon": A Voyage to South America in a Thirty-Ton Yacht.* 8vo. Pp. 480. Edinburgh: Thomas Nelson and Sons, Ltd., 1920. *Price* 2*s.* 6*d. net.*

*Report on Rainfall Register in Mysore*, 1918. Bangalore, 1920.

*Report on the Administration of Agra and Oudh.* Allahabad, 1920.

*Report on the Administration of the Punjab and its Dependencies for* 1918-19. Lahore, 1920.

*Whitaker's Almanack for* 1920. *Price* 6*s. net.*

*Svenska Turistföreningens Årsskrift.* Stockholm, 1920.

*The Handbook of Uganda.* Second Edition. By H. R. WALLIS, C.M.G., C.B.E. London, 1920. *Price* 7*s.* 6*d.*

*Canada To-Day*, 1920. The Standard Annual Reference Book on Canada. London, 1920. *Price* 2*s.* 6*d. net.*

*Publishers forwarding books for review will greatly oblige by marking the* **price** *in clear figures, especially in the case of foreign books.*

## NEW MAPS AND ATLASES.

### EUROPE.

**ORDNANCE SURVEY OF SCOTLAND.**—The following publications were issued from 1st to 31st October 1919:—

Six-inch Maps (revised). Quarter-sheets with contours in red. Price 1s. 6d. each. *Edinburghshire.*—4 SW. *Fifeshire.*—15 NW.; 22 SW.; 30 NW. *Kinrossshire.*—17 SW. *Renfrewshire.*—1 SW.; 4 SW.; 5 SE.; 6 SW.; 8 NW.; 10 NW., S.W.

1 : 2500 Scale Maps (revised), with houses stippled and with areas. Price 5s. each. *Argyllshire.*—Sheets **246**—5, 6; **262**—6, 9, 15; **263**—10, 13; **265**—6, 8.

*Buteshire.*—Sheets 255—5, 13, 14; 259—2, 6 and 5, 7 and 8. *Dumbartonshire.*—Sheet N 11—5.

The following publications were issued from 1st to 30th November 1919:—

Six-inch Maps revised. Quarter-sheets with contours in red. Price 1s. 6d. each. *Edinburghshire.*—3 SW. *Fifeshire.*—4 SE.; 13 NE.; 15 SW.; 20 NE.; 22 NW.; 36 NW.; 42 NE. *Kinross-shire.*—18 SE. *Renfrewshire.*—3 SW.

1:2500 Scale Maps revised, with houses stippled and with areas. Price 5s. each. *Argyllshire.*—Sheets 262—2; 265—3. *Buteshire.*—Sheet 259—4.

Special Enlargements from 1:2500 to 1:1250 Scale.—Owing to the increased cost of production of these plans it has been found necessary to raise the published price from 5s. to 6s. each.

The following publications were issued from 1st to 31st December 1919:—

Six-inch Maps revised. Quarter-sheets with contours in red. Price 1s. 6d. each. *Edinburghshire.*—4 SE. *Fifeshire.*—15 NE., SE.; 16 NW.; 27 SE. *Haddingtonshire.*—8 SE. *Kinross-shire.*—17 NE., SE.; 18 SW. *Renfrewshire.*—17 SW.

1:2500 Scale Maps revised, with houses stippled and with areas. Price 5s. each. *Argyllshire.*—Sheets 246—1, 2, 10, 13, 14; 262—3. *Buteshire.*—Sheet 249—12.

The following publications were issued from 1st to 31st January 1920:—

One-inch Map. Black Outline Edition. Sheets 8, 22, 63, 85. Price 1s. 6d. each.

Six-Inch Maps revised. Quarter-sheets with contours in red. Price 1s. 6d. each. *Edinburghshire.*—3 NW., NE., SE. *Fifeshire.*—7 NW., SE.; 8 SW., SE.; 12 SE.; 19 NE.; 20 SE. *Fife and Kinross.*—18 NE.; 25 SW. *Kinross-shire.*—18 NW.; 25 NE. *Renfrewshire.*—13 NW. NE. and SE. Without contours, price 1s. 6d. each. *Fifeshire.*—40 (NE. and NW.).

1:2500 Scale Maps revised, with houses stippled and with areas. Price 5s. each. *Buteshire.*—Sheet 215—5.

The following publications were issued from 2nd to 28th February 1920:—

Six-inch Maps revised. Quarter-sheets with contours in red. Price 1s. 6d. each. *Fifeshire.*—7 NE.; 8 NW.; 13 SW.; 20 NW.; 27 NE.; 38 SW., SE. *Fife and Kinross.*—19 NW. *Renfrewshire.*—9 NW. and SW.; 13 SW. Quarter-sheets, without contours. Price 1s. 6d. each. *Fifeshire.*—43 NW.

1:2500 Scale Maps revised, with houses stippled and with areas. Price 5s. each. *Buteshire.*—Sheet 255—1.

The following publications were issued from 1st to 31st March 1920:—

Six-inch Maps revised. Quarter-sheets with contours in red. Price 1s. 6d. each. *Fifeshire.*—7 SW.; 35 SW.

**ADMIRALTY CHARTS—**

**Scotland, East Coast.**—Inverness Firth. Oct. 1919. No. 1784. Price 3s.

" " Firth of Forth: Fisherrow to Port Edgar. March 1920. No. 114 B. Price 3s.

**Scotland, North Coast.**—Western Approaches to Pentland Firth. Jan. 1920. No. 2171. Price 5s.

**Scotland, North and East Coasts.**—South Sheet. May 1920. No. 2397 A. Price 3s.

**British Isles, English Channel, and North Sea.**—D 19, D 20, D 21, D 22, D 23, D 24, D 25. March 1920.

*Admiralty Office, London.*

BARTHOLOMEW'S HALF-INCH TO MILE MAP OF SCOTLAND. New Editions. 1920.

**Sheet 2. Solway District.** Orographical colouring and Roads.

**Sheet 7. Glasgow and Clyde.** Orographical colouring and Roads.

Price, each sheet, paper, 1s. 6d. net; mounted on cloth, 3s. net.

*John Bartholomew and Son, Ltd., Edinburgh.*

BARTHOLOMEW'S HALF-INCH TO MILE MAP OF ENGLAND.—New Editions. 1920.

**Sheet 3. The Lake District.** Orographical colouring and Roads.

**Sheet 9. Sheffield.** Orographical colouring and Roads.

Price, each sheet, paper, 1s. 6d. net; mounted on cloth, 3s. net.

*John Bartholomew and Son, Ltd., Edinburgh.*

BARTHOLOMEW'S QUARTER-INCH TO MILE MAP OF ENGLAND. New Editions. 1920.

**Sheet 3. Yorkshire.** Principal roads are coloured.

**Sheet 12. Surrey, Sussex, Kent.** Principal roads are coloured.

Price, each sheet, paper, 1s. 6d. net; mounted on cloth, 3s.

*John Bartholomew and Son, Ltd., Edinburgh.*

ENVIRONS OF LONDON. Scale quarter-inch to the mile.

Orographical colouring and Roads.

Price, paper, 1s. 6d. net; mounted on cloth, 3s.

*John Bartholomew and Son, Ltd., Edinburgh.*

MEDITERRANEAN SEA.

**Atlas of the Normal Values of the Meteorological Elements for the Mediterranean Sea and the Adjacent Lands.** Price 6s. net. 1919.

*His Majesty's Stationery Office, London.*

This is the second edition of a valuable series of maps illustrating the meteorological conditions over the whole of the Mediterranean area. Included in the Atlas are a number of small charts showing the distribution of pressure at levels of 1000, 2000, and 3000 metres, prepared by Col. H. G. Lyons, of the Meteorological Office, who is also responsible for the charts which formed the basis of the Atlas.

BARTHOLOMEW'S POLITICAL MAP OF THE NEW EUROPE, 1920. Price 2s. 6d. on paper: 5s. on cloth.

An inset map shows the boundaries as they were in 1914.

*John Bartholomew and Son, Ltd., Edinburgh.*

PHILIP'S SMALLER SCHOOLROOM MAP OF EUROPE.—Scale 1 : 6,000,000.

PHILIP'S AUTHENTIC SERIES—EUROPE.—Scale 1 : 8,750, 000. Price 2s.

*George Philip and Son, Ltd., London.*

QUADRO GEOGRAFICO DELLA VITTORIA.—Scale 1 : 12,000,000.

*Istituto Geografico de Agostini, Novara.*

A wall chart showing the new States of Europe, the new boundaries of Italy, and Italian possessions in Africa, with a number of photographic illustrations in the margin.

## ASIA.

INDIAN GOVERNMENT SURVEYS.

India.—Showing Railways open and under construction. March 1918. Scale 64 miles to an inch.

Bihar and Orissa.—Scale 32 miles to an inch. 1918. Price 1 rupee 4 annas.

**Burma.**—Scale 32 miles to an inch. 1918. Price 1 rupee 12 annas.

**Punjab** (in two sections).—Scale 1 : 1,000,000. 1918. Price 3 rupees.

**India and Adjacent Countries.**—Scale 1 : 1,000,000. Price 1 rupee each.

| | | |
|---|---|---|
| Sheet 23 | (Political edition), . . . . . | 1918 |
| „ 37 | (rough provisional issue), . . . . | 1918 |
| „ 42 | (1) Layered edition ; (2) Political edition, | 1918 |
| „ 46 | „ „ . | 1917 |
| „ 54 | „ „ . | 1918 |
| „ 61 | „ „ . | 1918 |
| „ 70 | „ „ . | 1918 |

**QUARTER-INCH SURVEY MAP OF INDIA.**—Degree Sheets. Price each sheet 1 rupee, or with boundaries coloured 1 rupee 2 annas. Sheets 38-L, 40-D, 40-L, 40-P, 48-O, 55-N, 55-P, 56-I, 56-M, 57-D, 57-N, 58-E, 58-I, 66-B, 79-O, 84-E, and 93-D. The following Degree Sheets are issued in two forms—one layered and the other political—55-M, 64-A, 84-N, 92-A, 93-I, 102-C, 102-D, and 102-G.

**HALF-INCH SURVEY MAP OF INDIA.**—Price each sheet 1 rupee, or with boundaries coloured 1 rupee 2 annas. Sheets 38-K SE., 38-L NW., 38-L SW., 38-N SE., 38-O NE., 48-L NE., 48-L SE., 48-P NE., 53-L SE., 55-D NE., 55-D NW., 55-D SE., 55-D SW., 55-I SE., 55-K SE., 56-A NE., 56-A SE., 56-C NW., 56-E SE., 56-E SW., 56-F SE., 56-K SE., 57-G SE., 57-G SW., 57-H NE., 57-H SE., 57-L SE., 58-B NW., 58-B SE., 58-B SW., 66-D SW., 72-L SW., 73-B NW., 83-B NW., 83-B SE., 83-B SW., 83-D NW., 84-K SE., 84-L NW., 84-L SW., 93-I SE., 94-A SE.

*Survey of India Offices, Calcutta.*

## AFRICA.

**EGYPT.**—1 : 1000,000. Sheets—c 1, c 2, c 3, c 4, c 5, c 7, c 8, c 9, c 10, c 11, c 12, c 13, c 14, c 15, c 16, c 17, c 18, c 19, c 20, c 34, c 37, c 38, 10 N, 11 N, 12 N, 13 O, and part of 13 N, 14 P, 15 P, 15 Q, and part of 16 Q, Special Sheet 1, mostly 1916. Price, per sheet, unmounted 50 millièmes; mounted 65 millièmes. *Survey of Egypt.*

The sheets are not all uniformly treated, but on most contours are drawn on the land at intervals of 100 feet, while depths are shown in metres. The map is very complete. Distinctive lettering is used to indicate tribal names, and to distinguish ancient sites, while a variety of signs indicate the railways, roads, wells, watering-places, telegraph offices, etc.; towns and villages are graded according to population (1907).

**SOUTHERN NIGERIA.**—1 : 125,000. Sheet—North c 31—W III. Ogbomosho. Price 1s. 6d. *Published by the Authority of Sir Frederick Lugard, G.C.M.G., C.B., D.S.O., Governor.*

**CENTRAL AND SOUTH AFRICA.** 1920. *Offices of "South Africa," London.*

## NORTH AMERICA.

**DOMINION OF CANADA.**—Indicating Natural Resources, Transportation, and Trade Routes. Scale 100 miles to 1 inch. Preliminary Edition, 1920. *Department of the Interior, Canada.*

**NORTHERN ALBERTA.**—Map showing Disposition of Lands, September 1919. Scale 1 : 1,792,000. *Department of the Interior, Canada.*

**GEOLOGIC ATLAS OF THE UNITED STATES.**

Folio 200. Galena—Elizabeth, Illinois. 1916.
„ 202. Eureka Springs—Harnson, Arkansas. 1916.
„ 203. Colorado Springs, Colorado. 1916.
„ 204. Tolchester, Maryland. 1917.
„ 205. Detroit, Michigan. 1917.
„ 206. Leavenworth—Smithville, Missouri. 1917.
„ 207. Deming, New Mexico. 1917.
„ 208. Colchester—Macomb, Illinois. 1919.
„ 209. Newell, South Dakota. 1919.
„ 210. Herman—Morris, Minnesota. 1919.

Folio 205 is 50 cents, the others are 25 cents.

*United States Geological Survey, Washington.*

## GENERAL.

**ADMIRALTY CHARTS.**

Telegraph Chart of the World. Sheet I., Jan., 1920. No. 3778. Price 4s.
„ „ Sheet II., Jan., 1920. No. 3779. Price 4s.
„ „ Sheet III., Jan., 1920. No. 3780. Price 4s.

*Admiralty Office, London.*

**FOREST REGIONS AND TIMBER TREES.**—A series of Maps arranged by J. Hudson Davies, F.R.H.S. Price 8s. each.

**Map 2, North America.** On Mercator's Projection.
**Map 3, South America.** On Mercator's Projection.
**Map 4, Europe and Africa.** On Mercator's Projection.

*W. and A. K. Johnston, Ltd., Edinburgh and London.*

Small insets round the margins of each of these maps give the distribution of the principal trees, and the exporting ports are marked, while on the main map the more general forms of vegetation are depicted.

## ATLASES.

**THE "TIMES" SURVEY ATLAS OF THE WORLD.**—A comprehensive series of Maps reduced from the National Surveys of the World and the special surveys of travellers and explorers, with General Index of over two hundred thousand names. Prepared at the Edinburgh Geographical Institute under the direction of J. G. Bartholomew, LL.D., F.R.S.E., F.R.G.S., Cartographer to the King.

To be published in thirty-seven fortnightly parts, of which Parts I. to XIII. have already appeared. Price 2s. 6d. per part. See review on p. 180.

*Office of "The Times," London.*

**"THE DAILY TELEGRAPH" VICTORY ATLAS OF THE WORLD.**—Edited by Alexander Gross, F.R.G.S. To be completed in about forty-eight parts (three Maps in each part), of which Parts I. to XXXII. have been published. Price 2s. per part. *"Geographia" Ltd., London.*

**PHILIP'S NEW SCHOOL ATLAS OF COMPARATIVE GEOGRAPHY, 1920.** Price 3s. 6d. net. *George Philip and Son, Ltd., London.*

This is a new edition, showing boundaries according to the Peace Treaties.

**A PROGRESSIVE COURSE OF COMPARATIVE GEOGRAPHY,** by P. H. L'Estrange, B.A. Part II.: The British Isles. New edition. Price 2s. 6d. net.

*George Philip and Son, Ltd., London.*

# THE SCOTTISH GEOGRAPHICAL MAGAZINE.

## THE RECONSTRUCTION OF EUROPE.[1]

By JOHN M'FARLANE, M.A.

SINCE the last meeting of the British Association, Treaties of Peace have been signed with Austria, Hungary, Bulgaria, and Turkey; and, although there is still much which is unsettled, especially in the East, it is now possible to obtain some idea of the changes wrought on the map of Europe by the Great War. These changes are indeed of the most profound and far-reaching description. Old States have in some cases either disappeared or suffered an enormous loss of territory, and new States, with the very names of which we are but vaguely familiar, have been brought into existence. It has seemed to me, therefore, that it might not be altogether inappropriate to inquire into the principles upon which these territorial changes have been made, and to consider how far the political units affected by them possess the elements of stability. A learned but pessimistic historian to whom I confided my intention shook his head and gravely remarked, "Whatever you say on that subject will be writ in water." But the more I consider the matter the more do I feel convinced that certain features in the reconstructed Europe are of great and even of permanent value, and it is in that belief that I have ventured to disregard the warning which was given me.

In the rearrangement of European States which has taken place, geographical conditions have perhaps not always had the consideration which they deserve, but in an inquiry such as that upon which we are engaged they naturally occupy the first place. And by geographical

[1] Presidential Address to Section E (Geography) at the Cardiff Meeting of the British Association, August 24, 1920.

conditions I am not thinking primarily, or even mainly, of defensive frontiers. It may be true, as Sir Thomas Holdich implies, that they alone form the true limits of a State. But if they do we ought to carry our theory to its logical conclusion and crown them with barbed-wire entanglements. Whether mankind would be happier or even safer if placed in a series of gigantic compounds I greatly doubt. It is to the land within the frontier, and not to the frontier itself, that our main consideration should be given. The factors which we have to take into account are those which enable a people to lead a common national life, to develop the economic resources of the region within which they dwell, to communicate freely with other peoples, and to provide not only for the needs of the moment, but as far as possible for those arising out of the natural increase of the population.

The principle of self-determination has likewise played an important, if not always a well-defined, part in the rearrangement of Europe. The basis upon which the new nationalities have been constituted is on the whole ethnical, though it is true that within the main ethnical divisions advantage has been taken of the further differentiation in racial characteristics arising out of differences in geographical environment, history, language, and religion. But no more striking illustration could be adduced of the strength of ethnic relationships at the present time than the union of the Czechs with the Slovaks, or of the Serbs with the Croats and the Slovenes. Economic considerations, of course, played a great part in the settlement arrived at with Germany, but on the whole less weight has been attached to them than to ethnic conditions. In cases where they have been allowed to influence the final decision the result arrived at has not always been a happy one. Nor can more be said for those cases where the motive was political or strategic. Historical claims, which have been urged mainly by Powers anxious to obtain more than that to which they are entitled on other grounds, may be regarded as the weakest of all claims to the possession of new territory.

When we come to examine the application of the principles which I have indicated to the settlement of Europe we shall, I think, find that the promise of stability is greatest in those cases where geographical and ethnical conditions are most in harmony, and least where undue weight has been given to conditions which are neither geographical nor ethnical.

The restoration of Alsace-Lorraine to France has always been treated as a foregone conclusion in the event of a successful termination of the war against Germany. From the geographical point of view, however, there are certainly objections to the inclusion of Alsace within French territory. The true frontier of France in that region is the Vosges, not necessarily because they form the best defensive frontier, but because Alsace belongs to the Rhineland, and the possession of it brings France into a position from which trouble with Germany may arise in the future.

Nor can French claims to Alsace be justified on ethnical grounds. The population of the region contains a strong Teutonic element, as indeed does that of Northern France, and the language spoken by over

90 per cent. of the people is German. On the other hand, it must be borne in mind that during the period between the annexation of Alsace by France in the seventeenth century and its annexation by Germany in the nineteenth French policy appears to have been highly successful in winning over the sympathies of the Alsatians, just as between 1871 and 1914 German policy was no less successful in alienating them. The restoration of Alsace must therefore be defended, if at all, on the ground that its inhabitants are more attached to France than to Germany. That attachment it will be necessary for France to preserve in the future, as economic conditions are not altogether favourable. The cotton industry of Alsace may perhaps attach itself to that of France without great difficulty; but the agricultural produce of the Rhine plain will as before be likely to find its best and most convenient market in the industrial regions of Germany.

With regard to Lorraine the position is somewhat different. Physically that region belongs in the main to the country of the Paris basin, and is therefore in a sense part of France. Strategically it commands the routes which enter France from Germany between Belgium and the Vosges, and from that point of view its possession is of the utmost importance to her. Of the native population about one-third speak French, and the German element is mainly concentrated in the more densely populated districts of the north-east. But although in these various aspects Lorraine may be regarded as belonging to France in a sense in which Alsace does not, the real argument for the restoration of the ceded provinces is in both cases the same. Lorraine, no less than Alsace, is French in its civilisation and in its sympathies.

From the economic point of view, however, the great deposits of iron ore in Lorraine constitute its chief attraction for France to-day, just as they appear to have constituted its chief attraction for Germany half a century ago. But the transfer of the province from Germany, which has built up a great industry on the exploitation of its mines, to France, which does not possess in sufficient abundance coal for smelting purposes, together with other arrangements of a territorial or quasi-territorial nature made partly at least in consequence of this transfer, at once raises questions as to the extent to which the economic stability of Germany is threatened. The position of that country with regard to the manufacture of iron and steel will be greatly affected, for not only does she lose, in Lorraine and the Saar, regions in which these manufactures were highly developed, but she loses in them the sources from which other manufacturing regions still left to her, notably the Ruhr, drew considerable quantities either of raw materials or of semi-manufactured goods. For example, in 1913 the Ruhr, which produced over 40 per cent. of the pig iron of the German Empire, obtained 15 per cent. of its iron ore from Lorraine, and it also obtained from there and from the Saar a large amount of pig iron for the manufacture of steel. Unless, therefore, arrangements can be made for a continued supply of these materials a number of its industrial establishments will have to be closed down.

In regard to coal the position is also serious. We need not, perhaps,

be unduly impressed by the somewhat alarmist attitude of Mr. Keynes, who estimates that on the basis of the 1913 figures Germany, as she is now constituted, will require for the pre-war efficiency of her railways and industries an annual output of 110,000,000 tons, and that instead she will have in future only 100,000,000 tons, of which 40,000,000 will be mortgaged to the Allies. In arriving at these figures Mr. Keynes has made an allowance of 18,000,000 tons for decreased production, one-half of which is caused by the German miner having shortened his shift from eight and a half to seven hours per day. This is certainly a deduction which we need not take into account. Mr. Keynes also leaves out of his calculation the fact that previous to the war about 10,000,000 tons per year were sent from Upper Silesia to other parts of Germany, and there is no reason to suppose that this amount need be greatly reduced, especially in view of Article 90 of the Treaty of Versailles, which provides that "for a period of fifteen years Poland will permit the produce of the mines of Upper Silesia to be available for sale to purchasers in Germany on terms as favourable as are applicable to like products sold under similar conditions in Poland or in any other country." We have further to take into account the opportunities for economy in the use of coal, the reduction in the amount which will be required for bunkers, the possibility of renewing imports from abroad—to a very limited extent indeed, but still to some extent—and the fact that the French mines are being restored more rapidly than at one time appeared possible. (On the basis of the production of the first four months of 1920 Germany could already reduce her Treaty obligations to France by 1,000,000 tons per year.) Taking all of these facts into account, it is probably correct to say that when Germany can restore the output of the mines left to her to the 1913 figure, she will, as regards her coal supply for industrial purposes, be in a position not very far removed from that in which she was in 1910, when her total consumption, apart from that at the mines, was about 100,000,000 tons.

The actual arrangements which have been made, it is true, are in some cases open to objection. The Saar is not geographically part of France, and its inhabitants are German by race, language, and sympathy. It is only in the economic necessities of the situation that a defence, though hardly a justification, of the annexation of the coalfield can be found. The coal from it is to be used in the main for the same purposes as before, whereas if it had been left to Germany much of it might have been diverted to other purposes. In 1913 the total production of Alsace-Lorraine and the Saar amounted to about 18,000,000 tons, while their consumption was about 14,000,000 tons. There is thus apparently a net gain to France of about 4,000,000 tons, but from that must be deducted the amount which the North-East of France received from this field in pre-war days. Switzerland also will probably in future continue to draw part of its supplies from the Saar.

The stipulation that Germany should for ten years pay part of her indemnities to France, Belgium, and Italy in kind also indicates an attempt to preserve the pre-war distribution of coal in Europe, though

in some respects the scales seem to have been rather unfairly weighted against Germany. France, for example, requires a continuance of Westphalian coal for the metallurgical industries of Lorraine and the Saar, while Germany requires a continuance of Lorraine ore if her iron-works on the Ruhr are not to be closed down. There was therefore nothing unreasonable in the German request that she should be secured her supplies of the latter commodity. Indeed, it would have been to the advantage of both countries if a clause similar to Article 90, which I have already quoted, had been inserted in the Treaty. It is true that temporary arrangements have since been made which will ensure to Germany a considerable proportion of her pre-war consumption of minette ores. But some agreement which enabled the two separate but complementary natural regions of the Saar and the Ruhr to exchange their surplus products on a business basis would have tended to an earlier restoration of good feeling between the two countries.

One other question which arises in this connection is the extent to which the steel industry of Germany will suffer by the loss of the regions from which she obtained the semi-manufactured products necessary for it. On this subject it is dangerous to prophesy, but when we take into consideration the length of time required for the construction of modern steelworks, the technical skill involved in their management, and the uncertainties with regard to future supplies of fuel, it seems unlikely that France will attempt any rapid development of her steel industry. In that case the Ruhr will still continue to be an important market for Lorraine and the Saar.

Our general conclusion, then, is that the territorial arrangements which have been made do not necessarily imperil the economic stability of Germany. The economic consequences of the war are really much more serious than the economic consequences of the peace. Germany has for ten years to make good the difference between the actual and the pre-war production of the French mines which she destroyed. Her own miners are working shorter hours, and as a result her own production is reduced, and as British miners are doing the same she is unable to import from this country. For some years these deductions will represent a loss to her of about 40,000,000 tons per annum, and will undoubtedly make her position a serious one. But to give her either the Saar or the Upper Silesian coalfields would be to enable her to pass on to others the debt which she herself has incurred. The reduction of her annual deliveries of coal to France, Belgium, and Italy was, indeed, the best way in which to show mercy to her.

The position of Poland is geographically weak, partly because its surface features are such that the land has no well-marked individuality, and partly because there are on the east and west no natural boundaries to prevent invasion or to restrain the Poles from wandering far beyond the extreme limits of their State. Polish geographers themselves appear to be conscious of this geographical infirmity, as Vidal de la Blache would have termed it, and in an interesting little work Nalkowski has endeavoured to show that the very transitionality of the land between east and west entitles

it to be regarded as a geographical entity. But transitionality is rather the negation of geographical individuality than the basis on which it may be established. And indeed no one has pointed out its dangers more clearly than Nalkowski himself. "The Polish people," he says, "living in this transitional country always were, and still are, a prey to a succession of dangers and struggles. They should be ever alert and courageous, remembering that on such a transitional plain, devoid of strategic frontiers, racial boundaries are marked only by the energy and civilisation of the people. If they are strong they advance those frontiers by pushing forward; by weakening and giving way they promote their contraction. So the mainland may thrust out arms into the sea, or, being weak, may be breached and even overwhelmed by the ocean floods." If we bear in mind the constant temptation to a people which is strong to advance its political no less than its racial frontiers, and the constant danger to which a weakening people is exposed of finding its political frontier contract even more rapidly than its racial, we shall realise some of the evils to which a State basing its existence on transitionality is exposed.

It is, then, to racial feeling, rather than to geographical environment, that we must look for the basis of the new Polish State, but the intensity with which this feeling is likely to operate varies considerably in different parts of the region which it is proposed to include. In the plebiscite area of Upper Silesia there were, according to the census of 1900, which is believed to represent the facts more accurately than that of 1910, seven Poles to three of other nationalities. In Prussian Poland, apart from the western districts which have not been annexed to Poland and the town and district of Bromberg, the Poles number at least 75 per cent. of the total population, and in the ceded and plebiscite areas of East and West Prussia 52 per cent. Russian Poland, which contains rather more than two-thirds of the entire population of what we may call ethnic Poland, has 9,500,000 Poles and over 3,000,000 Jews, Germans, Lithuanians, and others, while West Galicia is almost solidly Polish. Thus out of a total population of 21,000,000 within the regions mentioned the Poles number 15,500,000, or about 75 per cent.

Bearing these facts in mind, it is possible to consider the potentialities of the new State. The population is sufficiently large and the Polish element within it is sufficiently strong to justify its independence on ethnical grounds. Moreover, the alien elements which it contains are united neither by racial ties nor by contiguity of settlement. In Posen, for example, there is in the part annexed to Poland a definitely Polish population with a number of isolated German settlements, while in Russian Poland the Jews are to be found mainly in the towns. Considered as a whole, Poland is at least as pure racially as the United States.

When we consider the economic resources of Poland we see that they also make for a strong and united State. It is true that in the past the country has failed to develop as an economic unit, but this is a natural result of the Partitions and of the different economic

systems which have prevailed in different regions. Even now, however, we can trace the growth of two belts of industrial activity which will eventually unite these different regions together. One is situated on the coalfield running from Oppeln in Silesia by Cracow and Lemberg, and is engaged in mining, agriculture, and forestry; while the other extends from Posen by Lodz to Warsaw, and has much agricultural wealth and an important textile industry. Moreover, the conditions, geographical and economic, are favourable to the growth of international trade. If Poland obtains Upper Silesia she will have more coal than she requires, and the Upper Silesian fields will, as in the past, export their surplus produce to the surrounding countries, while the manufacturing districts will continue to find their best markets in the Russian area to the east. The outlets of the State are good, for not only has it for all practical purposes control of the port of Danzig, but it is able to share in the navigation of the Oder and it has easy access to the south by way of the Moravian Gap.

It seems obvious, therefore, that Poland can best seek compensation for the weakness of her geographical position by developing the natural resources which lie within her ethnic frontiers. By such a policy the different parts of the country will be more closely bound to one another than it is possible to bind them on a basis of racial affinity and national sentiment alone. Moreover, Poland is essentially the land of the Vistula, and whatever is done to improve navigation on that river will similarly tend to have a unifying effect upon the country as a whole. The mention of the Vistula, however, raises one point where geographical and ethnical conditions stand in marked antagonism to one another. The Poles have naturally tried to move downstream to the mouth of the river which gives their country what little geographical individuality it possesses, and the Polish corridor is the expression of that movement. On the other hand, the peoples of East and West Prussia are one and the same. The geographical reasons for giving Poland access to the sea are no doubt stronger than the historical reasons for leaving East Prussia united to the remainder of Germany, but strategically the position of the corridor is as bad as it can be, and the solution arrived at may not be accepted as final.

Lastly, we may consider the case of East Galicia, which the Poles claim not on geographical grounds, because it is in reality part of the Ukraine, and not on ethnical grounds, because the great majority of the inhabitants are Little Russians, but on the ground that they are and have for long been the ruling race in the land. It may also be that they are not uninfluenced by the fact that the region contains considerable stores of mineral oil. But as the claim of the Poles to form an independent State is based on the fact that they form a separate race, it is obviously unwise to weaken that claim by annexing a land which counts over 3,000,000 Ruthenes to one-third that number of Poles. Further, the same argument which the Poles use in regard to East Galicia could with no less reason be used by the Germans in Upper Silesia. Mr. Keynes, indeed, suggests that the Allies should

declare that in their judgment economic conditions require the inclusion of the coal districts of Upper Silesia in Germany unless the wishes of the inhabitants are decidedly to the contrary. It is not improbable that East Galicia would give a more emphatic vote against Polish rule than Upper Silesia will give for it. If Poland is to ensure her position she must forget the limits of her former empire, turn her back on the Russian plain with all the temptations which it offers, and resolutely set herself to the development of the basin of the Vistula, where alone she can find the conditions which make for strength and safety.

Czecho-Slovakia is in various ways the most interesting country in the reconstructed Europe. Both geographically and ethnically it is marked by some features of great strength, and by others which are a source of considerable weakness to it. Bohemia by its physical structure and its strategic position seems designed by Nature to be the home of a strong and homogeneous people. Moravia attaches itself more or less naturally to it, since it belongs in part to the Bohemian massif and is in part a dependency of that massif. Slovakia is Carpathian country, with a strip of the Hungarian plain. Thus, while Bohemia possesses great geographical individuality and Slovakia is at least strategically strong, Czecho-Slovakia as a whole does not possess geographical unity and is in a sense strategically weak, since Moravia, which unites the two upland wings of the State, lies across the great route which leads from the Adriatic to the plains of Northern Europe. The country might easily, therefore, be cut in two as the result of a successful attack, either from the north or from the south. Later I shall endeavour to indicate certain compensations arising out of this diversity of geographical features, but for the moment at least they do not affect our argument.

We have, further, to note that the geographical and ethnical conditions are not altogether concordant. In Bohemia there is in the basin of the Eger in the north-west an almost homogeneous belt of German people, and on the north-eastern and south-western borderlands there are also strips of country in which the Germanic element is in a considerable majority. It is no doubt true, as Mr. Wallis has shown, that the Czechs are increasing in number more rapidly than the Germans, but on ethnical grounds alone there are undoubtedly strong reasons for detaching at least the north-western district from the Czecho-Slovak State. We feel justified in arguing, however, that here at least the governing factors are and must be geographical. To partition a country which seems predestined by its geographical features to be united and independent would give rise to an intolerable sense of injustice. I do not regard the matter either from the strategic or from the economic point of view, though both of these are no doubt important. What I have in mind is the influence which the geographical conditions of a country exercise upon the political ideas of its inhabitants. It is easy to denounce, as Mr. Toynbee does, "the pernicious doctrine of natural frontiers," but they will cease to appeal to the human mind only when mountain and river, highland and plain cease to appeal to the human imagination. With good sense on both sides the difficulties

in this particular case are not insurmountable. The Germans of the Eger valley, which is known as German Bohemia, have never looked to Germany for leadership nor regarded it as their home, and their main desire has hitherto been to form a separate province in the Austrian Empire. A liberal measure of autonomy might convert them into patriotic citizens, and if they would but condescend to learn the Czech language they might come to play an important part in the government of the country.

In Slovakia also there are racial differences. Within the mountain area the Slovaks form the great majority of the population, but in the valleys, and on the plains of the Danube to which the valleys open out, the Magyar element predominates. Moreover, it is the Magyar element which is racially the stronger, and before which the Slovaks are gradually retiring. Geographical and ethnical conditions therefore unite in fixing the political frontier between Magyar and Slovak at the meeting place of hill and plain. But on the west such a frontier would have been politically inexpedient because of its length and irregularity, and economically disadvantageous because the river valleys, of which there are about a dozen, would have had no easy means of communication with one another or with the outside world. Hence the frontier was carried south to the Danube, and about 1,000,000 Magyars were included in the total population of 3,500,000. Nor is the prospect of assimilating these Magyars particularly bright. The Germans in Bohemia are cut off from the Fatherland by mountain ranges, and, as we have seen, it does not appear to present any great attraction to them. It is otherwise in Slovakia, where the Magyars of the lowland live in close touch with those of the Alfold, and it may be long ere they forget their connection with them. The danger of transferring territory not on geographical or ethnical, but on economic grounds could not be more strikingly illustrated.

With regard to economic development, the future of the new State would appear to be well assured. Bohemia and Moravia were the most important industrial areas in the old Austrian Empire, and Slovakia, in addition to much good agricultural land, contains considerable stores of coal and iron. But if Czecho-Slovakia is to be knit together into a political and economic unit, its communications will have to be developed. We have already suggested that the geographical diversity of the country offers certain compensations for its lack of unity, but these cannot be taken advantage of until its different regions are more closely knit together than they are at present. The north of Bohemia finds its natural outlet both by rail and water through German ports. The south-east of Bohemia and Moravia look towards Vienna. In Slovakia the railways, with only one important exception, converge upon Budapest. The people appear to be alive to the necessity of remedying this state of affairs, and no fewer than fifteen new railways have been projected, which, when completed, will unite Bohemia and Moravia more closely to one another and Slovakia. Moreover, it is proposed to develop the waterways of the country by constructing a canal from the Danube at Pressburg to the Oder. From this canal another will

branch off at Prerau and run to Pardubitz on the Elbe, below which point that river has still to be canalised. If these improvements are carried out the position of Czecho-Slovakia will, for an inland State, be remarkably strong. It will have through communication by water with the Black Sea, the North Sea, and the Baltic, and some of the most important land routes of the Continent already run through it. On the other hand, its access to the Adriatic is handicapped by the fact that in order to reach that sea its goods will have to pass through the territory of two, if not of three, other States, and however well the doctrine of economic rights of way may sound in theory, there are undoubted drawbacks to it in practice. Even with the best intentions, neighbouring States may fail to afford adequate means of transport through defective organisation, trade disputes, or various other reasons. It is probable, therefore, that the development of internal communications will in the end be to the advantage of the German ports, and more especially of Hamburg. But the other outlets of the State will certainly tend towards the preservation of its economic independence.

The extent to which Rumania has improved her position as a result of the war is for the present a matter of speculation. On the one hand she has added greatly to the territory which she previously held, and superficially she has rendered it more compact; but on the other she has lost her unity of outlook, and strategically at least weakened her position by the abandonment of the Carpathians as her frontier. Again, whereas before the war she had a fairly homogeneous population—probably from 90 to 95 per cent. of the 7,250,000 people in the country being of Rumanian stock—she has, by the annexation of Transylvania, added an area of 22,000 square miles of territory, in which the Rumanians number less than one and a half out of a total of two and two-third millions. In that part of the Banat which she has obtained there is also a considerable alien element. It is in this combination of geographical division and ethnic intermixture that we may foresee a danger to Rumanian unity. That part of the State which is ethnically least Rumanian is separated from the remainder of the country by a high mountain range, and in its geographical outlook no less than in the racial sympathies of a great number of its inhabitants is turned towards the west, while pre-war Rumania remains pointed towards the south-east. Economically also there is a diversity of interest, and the historical tie is perhaps the most potent factor in binding the two regions together. It is not impossible, therefore, that two autonomous States may eventually be established, more or less closely united according to circumstances.

The position in the Dobruja is also open to criticism. Geographically the region belongs to Bulgaria, and the Danube will always be regarded as their true frontier by the Bulgarian people. Ethnically its composition is very mixed, and whatever it was originally, it certainly was not a Rumanian land. But after the Rumanians had rather unwillingly been compelled to accept it in exchange for Bessarabia, filched from them by the Russians, their numbers increased and their economic development of the region, and more especially of the port of Con-

stanza, undoubtedly gave them some claims to the northern part of it. As so often happens, however, when a country receives part of a natural region beyond its former boundaries, Rumania is fertile in excuses for annexing more of the Dobruja. To the southern part, which she received after the Balkan wars, and in the possession of which she has been confirmed by the peace terms with Bulgaria, she has neither ethnically nor economically any manner of right. The southern Dobruja is a fertile area which, before its annexation, formed the natural hinterland of the ports of Varna and Ruschuk. Her occupation of it will inevitably draw Rumania on to further intervention in Bulgarian affairs.

The arrangements which have been made with regard to the Banat must be considered in relation to the Magyar position in the Hungarian plain. The eastern county of the Banat, Krasso-Szörény, has a population which is in the main Rumanian, and as it belongs to the Carpathian area it is rightly included with Transylvania in Rumanian territory. In the remainder of the Banat, including Arad, the Rumanians form less than one-third of the total population, which also comprises Magyars, Germans, and Serbs. The Hungarian plain is a great natural region, capable of sub-division no doubt, but still a great natural region, in which the Magyar element is predominant. The natural limit of that plain is the mountain region which surrounds it, and to that limit at least the Magyar political power will constantly press. But Rumania has been permitted to descend from the mountains and Jugo-Slavia to cross the great river which forms her natural boundary, and both have obtained a foothold on the plain where it may be only too easy for them to seek occasion for further advances. And it cannot be urged that the principle of self-determination would have been violated by leaving the Western Banat to the Magyars. No plebiscite was taken, and it is impossible to say how the German element would have given what in the circumstances would have been the determining vote. Finally, as it was necessary to place nearly a million Magyars in Transylvania under Rumanian rule, it might not have been altogether inexpedient to leave some Rumanians on Hungarian soil.

For the extension of Jugo-Slavia beyond the Danube two pleas have been advanced, one ethnical and the other strategic. Neither is really valid. It is true that there is a Serbian area to the north of Belgrade, but the total number of Serbs within the part assigned to Jugo-Slavia probably does not much exceed 300,000. The strategic argument that the land which they occupy is necessary for the defence of the capital is equally inconclusive. From the military point of view it does not easily lend itself to defensive operations, and when we consider the political needs of the country we cannot avoid the conclusion that a much better solution might have been found in the removal of the capital to some more central position. The Danube is certainly a better defensive frontier than the somewhat arbitrary line which the Supreme Council has drawn across the Hungarian plain.

In fact, it is in the treatment of the Hungarian plain that we feel most disposed to criticise the territorial settlements of the Peace Treaties. Geographical principles have been violated by the dismem-

berment of a region in which the Magyars were in a majority, and in which they were steadily improving their position. Ethnical principles have been violated, both in the north, where a distinctly Magyar region has been added to Slovakia, and in the south where the western part of the Banat and Bačka have been divided between the Rumanians and the Jugo-Slavs, who together form a minority of the total population. For the transfer of Arad to Rumania and of the Burgenland to Austria more is to be said, but the position as a whole is one of unstable equilibrium, and can only be maintained by support from without. In this part of Europe at least a League of Nations will not have to seek for its troubles.

When we turn to Austria we are confronted with the great tragedy in the reconstruction of Europe. Of that country it could once be said, "Bella gerant alii, tu, felix Austria, nube," but to-day, when dynastic bonds have been loosened, the constituent parts of the great but heterogeneous empire which she thus built up have each gone its own way. And for that result Austria herself is to blame. She failed to realise that an empire such as hers could only be permanently retained on a basis of common political and economic interest. Instead of adopting such a policy, however, she exploited rather than developed the subject nationalities, and to-day their economic, no less than their political, independence of her is vital to their existence. Thus it is that the Austrian capital, which occupies a situation unrivalled in Europe, and which before the war numbered over 2,000,000 souls, finds herself with her occupation gone. For the moment Vienna is not necessary either to Austria or to the so-called Succession States, and she will not be necessary to them until she again has definite functions to perform. I do not overlook the fact that Vienna is also an industrial city, and that it, as well as various other towns in Lower Austria, is at present unable to obtain either raw materials for its industries or foodstuffs for its inhabitants. But there are already indications that this state of affairs will shortly be ameliorated by economic treaties with the neighbouring States. And what I am particularly concerned with is not the temporary but the permanent effects of the change which has taken place. The entire political re-orientation of Austria is necessary if she is to emerge successfully from her present trials, and such a re-orientation must be brought about with due regard to geographical and ethnical conditions. The two courses which are open to her lead in opposite directions. On the one hand she may become a member of a Danubian confederation, on the other she may throw in her lot with the German people. The first would really imply an attempt to restore the economic position which she held before the war, but it is questionable whether it is either possible or expedient for her to make such an attempt. A Danubian confederation will inevitably be of slow growth, as it is only under the pressure of economic necessity that it will be joined by the various nationalities of south-eastern Europe. The suggestions made by Mr. Asquith, Mr. Keynes, and others, for a compulsory free-trade union would, if carried into effect, be provocative of the most intense resentment among most, if not all, of the States concerned. But even if a Danubian confederation

were established, it does not follow that Austria would be able to play a part in it similar to that which she played in the Dual Monarchy. With the construction of new railways and the growth of new commercial centres it is probable that much of the trade with the south-east of Europe which formerly passed through Vienna will in future go to the east of that city. Even now Pressburg, or Bratislava, the name by which it will henceforth be known, is rapidly developing at the expense alike of Vienna and Budapest. Finally, Austria has in the past shown little capacity to understand the Slav peoples, and in any case her position in what would primarily be a Slav confederation would be an invidious one. For these reasons we turn to the suggestion that Austria should enter the German Empire, which, both on geographical and on ethnical grounds, would appear to be her proper place. Geographically she is German, because the bulk of the territory left to her belongs either to the Alpine range or to the Alpine foreland. It is only when we reach the basin of Vienna that we leave the mid-world mountain system and look towards the south-east of Europe across the great Hungarian plain. Ethnically, of course, she is essentially German. Now although my argument hitherto has rather endeavoured to show that the transfer of territory from one State to another on purely economic grounds is seldom to be justified, it is equally indefensible to argue that two States which are geographically and ethnically related are not to be allowed to unite their fortunes because it would be to their interest to do so. And that it would be to their interest there seems little doubt. Austria would still be able to derive some of her raw materials and foodstuffs from the Succession States, and she would have, in addition, a great German area in which she would find scope for her commercial and financial activities. Even if Naumann were but playing the part of the Tempter, who said, "All these things will I give thee if thou wilt fall down and worship me," he undoubtedly told the truth when he said, "The whole of Germany is now more open to the Viennese crafts than ever before. The Viennese might make an artistic conquest extending to Hamburg and Danzig." But not only would Austria find a market for her industrial products in Germany, she would become the great trading centre between Germany and south-east Europe, and in that way would once more be, but in a newer and better sense than before, the *Ostmark* of the German people.

The absorption of Austria in Germany is opposed by France, mainly because she cannot conceive that her great secular struggle with the people on the other side of the Rhine will ever come to an end, and she fears the addition of 6,500,000 to the population of her ancient enemy. But quite apart from the fact that Germany and Austria cannot permanently be prevented from following a common destiny if they so desire, and apart from the fact that politically it is desirable they should do so with at least the tacit assent of the Allied Powers rather than in face of their avowed hostility, there are reasons for thinking that any danger to which France might be exposed by the additional man-power given to Germany would be more than compensated for by the altered political condition in Germany herself. Vienna

would form an effective counterpoise to Berlin, and all the more so because she is a great geographical centre, while Berlin is more or less a political creation. The South German people have never loved the latter city, and to-day they love her less than ever. In Vienna they would find not only a kindred civilisation with which they would be in sympathy, but a political leadership to which they would readily give heed. In such a Germany, divided in its allegiance between Berlin and Vienna, Prussian animosity to France would be more or less neutralised. Nor would Germany suffer disproportionately to her gain, since in the intermingling of Northern efficiency with Southern culture she would find a remedy for much of the present discontents. When the time comes, and Austria seeks to ally herself with her kin, we hope that no impassable obstacle will be placed in her way.

The long and as yet unsettled controversy on the limits of the Italian Kingdom illustrates very well the difficulties which may arise when geographical and ethnical conditions are subordinated to considerations of military strategy, history, and sentiment in the determination of national boundaries. The annexation of the Alto Adige has been generally accepted as inevitable. It is true that the population is German, but here, as in Bohemia, geographical conditions appear to speak the final word. Strategically also the frontier is good, and will do much to allay Italian anxiety with regard to the future. Hence, although ethnical conditions are to some extent ignored, the settlement which has been made will probably be a lasting one.

On the east the natural frontier of Italy obviously runs across the uplands from some point near the eastern extremity of the Carnic Alps to the Adriatic. The pre-war frontier was unsatisfactory for one reason because it assigned to Austria the essentially Italian region of the lower Isonzo. But once the lowlands are left on the west the uplands which border them on the east, whether Alpine or Karst, mark the natural limits of the Italian Kingdom, and beyond a position on them for strategic reasons the Italians have no claims in this direction except what they can establish on ethnical grounds. To these, therefore, we turn. In Carniola the Slovenes are in a large majority, and in Gorizia they also form the bulk of the population. On the other hand, in the town and district of Trieste the Italians predominate, and they also form a solid block on the west coast of Istria, though the rest of that country is peopled mainly by Slovenes. It seems to follow, therefore, that the plains of the Isonzo, the district of Trieste, and the west coast of Istria, with as much of the neighbouring upland as is necessary to secure their safety and communications, should be Italian and that the remainder should pass to the Jugo-Slavs. The so-called Wilson line, which runs from the neighbourhood of Tarvis to the mouth of the Arsa, met these requirements fairly well, though it placed from 300,000 to 400,000 Jugo-Slavs under Italian rule, to less than 50,000 Italians, half of whom are in Fiume itself, transferred to the Jugo-Slavs. Any additional territory must, by incorporating a larger alien element, be a source of

weakness and not of strength to Italy. To Fiume the Italians have no claim beyond the fact that in the town itself they slightly outnumber the Croats, though in the double town of Fiume-Sushak there is a large Slav majority. Beyond the sentimental reasons which they urge in public, however, there is the economic argument, which, perhaps wisely, they keep in the background. So long as Trieste and Fiume belonged to the same empire the limits within which each operated were fairly well defined, but if Fiume become Jugo-Slav it will not only prove a serious rival to Trieste, but will prevent Italy from exercising absolute control over much of the trade of Central Europe. For Trieste itself Italy has in truth little need, and the present condition of that city is eloquent testimony of the extent to which it depended for its prosperity upon the Austrian and German Empires. In the interests, then, not only of Jugo-Slavia but of Europe generally, Fiume must not become Italian, and the idea of constituting it a Free State might well be abandoned. Its development is more fully assured as the one great port of Jugo-Slavia than under any other form of government.

With regard to Italian claims in the Adriatic, little need be said. To the Dalmatian coast Italy has no right either on geographical or on ethnical grounds, and the possession of Pola, Valona, and some of the islands gives her all the strategic advantages which she has reason to demand. But, after all, the only danger which could threaten her in the Adriatic would come from Jugo-Slavia, and her best insurance against that danger would be an agreement by which the Adriatic should be neutralised. The destruction of the Austro-Hungarian fleet offers Italy a great opportunity of which she would do well to take advantage.

Of the prospects of Jugo-Slavia it is hard to speak with any feeling of certainty. With the exception of parts of Croatia-Slavonia and of Southern Hungary, the country is from the physical point of view essentially Balkan, and diversity rather than unity is its most pronounced characteristic. From this physical diversity there naturally results a diversity in outlook which might indeed be all to the good if the different parts of the country were linked together by a well-developed system of communication. Owing to the structure of the land, however, such a system will take long to complete.

Ethnic affinity forms the real basis of union, but whether that union implies unity is another matter. It is arguable that repulsion from the various peoples—Magyars, Turks, and Austrians—by whom they have been oppressed, rather than the attraction of kinship, is the force which has brought the Jugo-Slavs together. In any case the obstacles in the way of the growth of a strong national feeling are many. Serb, Croat, and Slovene, though they are all members of the Slav family, have each their distinctions and characteristics which political differences may tend to exaggerate rather than obliterate. In Serbian Macedonia, again, out of a total population of 1,100,000, there are 400,000 to 500,000 people who, though Slavs, are Bulgarian in their sympathies, and between Serb and Bulgarian there will long be bitter

enmity. Religious differences are not wanting. The Serbs belong to the Orthodox Church, but the Croats are Catholic, and in Bosnia there is a strong Mohammedan element. Cultural conditions show a wide range. The Macedonian Serb, who has but lately escaped from Turkish misrule, the untutored but independent Montenegrin, the Dalmatian, with his long traditions of Italian civilisation, the Serb of the kingdom, a sturdy fighter but without great political insight, and the Croat and Slovene, whose intellectual superiority is generally admitted, all stand on different levels in the scale of civilisation. To build up out of elements in many respects so diverse a common nationality without destroying what is best in each will be a long and laborious task. Economic conditions are not likely to be of much assistance. It is true that they are fairly uniform throughout Jugo-Slavia, and it is improbable that the economic interests of different regions will conflict to any great extent. On the other hand, since each region is more or less self-supporting, they will naturally unite into an economic whole less easily than if there had been greater diversity. What the future holds for Jugo-Slavia it is as yet impossible to say; but the country is one of great potentialities, and a long period of political rest might render possible the development of an important State.

This brings me to my conclusion. I have endeavoured to consider the great changes which have been made in Europe not in regard to the extent to which they do or do not comply with the canons of boundary-making, for after all there are no frontiers in Europe which can in these days of modern warfare be considered as providing a sure defence, but in regard rather to the stability of the States concerned. A great experiment has been made in the new settlement of Europe, and an experiment which contains at least the germs of success. But in many ways it falls far short of perfection, and even if it were perfect it could not be permanent. The methods which ought to be adopted to render it more equable and to adapt it to changing needs it is not for us to discuss here. But as geographers engaged in the study of the ever-changing relations of man to his environment we can play an important part in the formation of that enlightened public opinion upon which alone a society of nations can be established.

---

## SOME GEOGRAPHICAL FACTORS IN THE NORTHERN APPALACHIAN COALFIELD.

By P. W. Bryan, London School of Economics.

*(With Maps and Diagrams.)*

In the year 1912 the total coal production of the world was nearly 1400 million short tons. If for rough comparative purposes we take 100 million short tons as a unit, then the total world output would be 14 units, to which the United States contributed 5 units, Great Britain

3 units, and Germany 3 units. The United States therefore produced something over one-third, and Great Britain something over one-fifth of the total world output.

Of the 5 units which stand for the production of the United States over 3½ came from one great coalfield—the Appalachian, and 2½ from a single State in that field, the State of Pennsylvania. The striking fact, then, to be borne in mind is that nearly three-fourths of the output came from one coalfield and one-half from a single State in that large field.

In the same year Great Britain produced about 292,000,000 short tons. Deducting about 34,000,000 short tons as Scotland's contribution,

FIG. 1.—The Northern Appalachian Coalfield.
- - - - - - - area underlain by coal.
L, Latrobe; F, Fairmont; W, Wheeling; J, Johnstown; P, Pittsburg. Each dot on the coalfield represents 500,000 short tons raised in 1912.

the output of England and Wales was 258,000,000 short tons or 2½ units. Pennsylvania therefore, although it forms only a small portion of the Appalachian Coalfield, with an area slightly less than that of England and Wales, has a coal output roughly comparable to that of the five great coalfields south of the Tweed.

A map (see area underlain by coal in Fig. 1) in the United States Statistical Atlas, 1914, shows the Appalachian Coalfield as a great belt of country from Pennsylvania in the north to Alabama in the south, running along the westward edge of that maze of parallel valleys and ridges which is known as the Greater Appalachian Valley. Such a map has many obvious limitations. It tells us that coal exists with minor exceptions under all the indicated area. Beyond that fact it tells

us nothing. What one really wants to know is how much of that coal is being brought to the surface and where is it being mined. To answer these two questions the writer has constructed a map based on the output per county in 1912. This year was selected as giving fairly normal pre-war conditions.

This map (Fig. 1), on which each dot represents half a million short tons of coal raised to the surface, shows that a small part only of the great coalfield has been commercially developed. There are three main producing areas in the northern part of the coalfield. Two of these are in Pennsylvania—the one an area lying south and east of Pittsburg; the other an area producing anthracite in the north-east of the State. As has already been noted, nearly one-half of all the coal produced in the United States comes from these two districts in the proportion of 2 to 1. The area south and east of Pittsburg forms the greatest bituminous coal-producing region in the world, and as it is in many respects typical of the other bituminous regions in the United States it will be considered in some detail.

Pittsburg, situated high up on that long slope which falls away gently westward to the Mississippi (Fig. 2*a*), is in the river angle where the Allegheny flowing south unites with the Monongahela to form the Ohio. These rivers and their tributaries have trenched deeply the plateau which rises gently eastward to a brink—the Allegheny Front—overlooking the parallel ridges and furrows which make up the Greater Appalachian Valley.

The structure of this plateau and of the rolling plains country stretching away westward to the Mississippi consists of a series of low broad synclines and anticlines, running NE.-SW., roughly parallel to the Allegheny Front. A principal anticline, which is broader than its fellows and forms a kind of backbone to the series, runs in a southerly direction from Lake Erie through Cincinnati and separates the Appalachian Coalfield from the Central Coalfield in Illinois and Indiana. It is believed that in Carboniferous times, when the coal measures were being formed, this anticline was dry land separating two basins occupied by arms of the sea, in which were deposited the massive sandstones, shales, and limestones of the coal measures.

Towards the close of the Carboniferous Epoch the almost horizontal strata thus laid down were intensely folded and crushed against the old continent of Appalachia to the south-east. In this way were produced the ridges and furrows of the Greater Appalachian Valley. Heavy faulting along the westward edge of this zone of intense folding formed the escarpment—the Allegheny Front—which separates the ridge and furrow structure of the valley from the gently undulating structure of the plateau. With the exception of the anthracite field the chief coal-mining districts lie wholly on this plateau of almost horizontal rocks to the west of the Great Valley. This fact, as will be seen later, has a direct bearing on the methods of mining in vogue in each area.

Ages of erosion reduced the plateau surface to a base level. Subsequent uplifts rejuvenated the rivers. They began again their work of modelling the surface. They dug out those deep trenches which are

such a conspicuous feature of the relief to-day. These deep valleys have played and still play a big rôle in the industrial development of the region. The shallow synclines have preserved the coal at no great depth. The low anticlines bring it still nearer to the surface, or, where their summits have been planed off, as in the Connellsville District, the coal outcrops on each flank. Such are the main structural facts we need to bear in mind in relation to the Appalachian Coalfield. Having

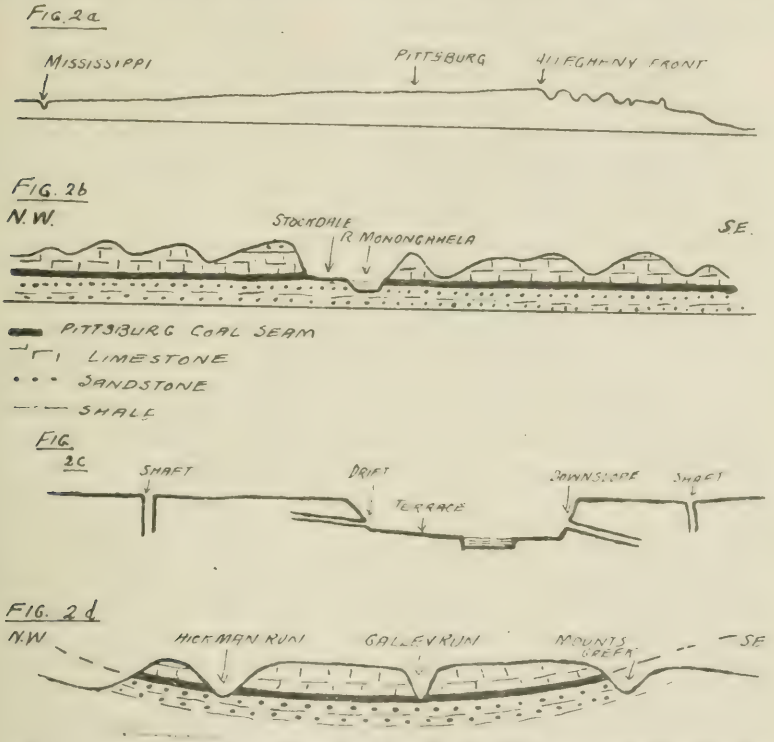



FIG. 2.—*a*. The Position of Pittsburg. *b*. The Position of the Pittsburg coal bed. *c*. Diagram to show methods of mining. *d*. The Connellsville Outlier. The streams in this diagram are north bank tributaries of the Youghiogheny River near Connellsville (see Fig. 4).

this broad picture in our minds, let us get closer and consider the main producing area in more detail.

We have already noted that it lies east and south of Pittsburg (Figs. 1 and 3). It is not confined to the State, but extends westward into Ohio and southward into West Virginia. Broadly considered, it is the country drained by the lower Monongahela, the lower Youghiogheny, and the Conemaugh—a left bank tributary of the Allegheny. These river valleys, giving a down grade for all coal moving NW., make Pittsburg the natural focus of the region. Hence within a short radius of Pittsburg, on the NW. edge of the coalfield (Allegheny Co.), we find

steelworks, the output of which (in value) is 25 per cent. of the total output of steel in the United States. Apart from the production of this small area round Pittsburg, another 22 per cent. is produced in adjoining counties, so that the area round Pittsburg related to this coalfield really produces 47 per cent. of the total steel output of the United States.

It was doubtless this nodality of Pittsburg, combined with the fact that this river group which centres on Pittsburg lies just westward of two passages through the Appalachian ridges, which led to the early development of the region as a coal-producing area, as it had already led to its settlement. This question of the eastward connections of the area with tidewater will be more fully considered when dealing with coal movement. For the moment it is useful to note that 200 miles south of these passageways there occur, through river action, two other routes through the ridges, and that just to westward of these openings, where the New and Big Sandy Rivers have trenched deeply the horizontal rocks of the plateau, we find the second largest bituminous coal-producing area of the coalfield—the New River, Kanawha, and Pocahontas Districts of West Virginia. (Figs. 1 and 3.)

From the name of the chief seam worked—the Pittsburg—the area lying south and east of Pittsburg has been called the Pittsburg District. The rocks of the district are mainly massive sandstones and limestones of Carboniferous age. They contain several coal seams, by far the most productive of which is the famous Pittsburg Bed. This seam lies at the base of a series of massive limestones, known, from the river valley where they are most fully developed, as the Monongahela formation (Fig. 2*b*). It lies horizontally over great areas, and is of nearly uniform thickness. Its depth below the surface varies with the relief, but it seldom exceeds 400 feet. The coal is chiefly of a high grade type suitable for making coke and gas. It is extensively mined where the seams are exposed at the surface. We shall therefore expect to find the mines chiefly where the streams have cut down to or below the level of the bed. A glance at a detailed map (Fig. 4) of part of the coalfield just south of Pittsburg makes it clear that the mines are strung out in long lines along the rivers and their tributaries. This map, which is based on a series of maps published by the United States Geological Survey on a scale of 1 inch to 1 mile, may be taken as fairly typical of the bituminous fields as a whole.

Horizontal adits and upslopes, which are locally known as drifts, are driven in from the river bank (Fig. 2 *c*). The coal can then be run out by gravity to the waterside. In the case of the canalised Monongahela it can be floated direct to the blast furnaces and steelworks at Pittsburg. In 1912 the total coal consumed in the Pittsburg Metropolitan District was 18 million short tons. Of this total 10 million short tons were waterborne on the Monongahela. Fifty-one per cent. of the bituminous coal won in Pennsylvania in 1909 was taken out by drift; twenty per cent. by downslope, requiring some mechanical power to raise the coal; and twenty-three per cent. by short shafts. The deep shafts which are common in Great Britain, and which add so greatly to the cost of raising

the coal to the surface, are not needed in this field. Seldom is the plateau surface more than 400 feet above the coal bed, and the deep valleys, even where they do not reach the coal bed itself, still reduce very much the depth of shaft required.

As has already been said, the seams over large areas are nearly

FIG. 3.—The Coalfields of SE. Pennsylvania and West Virginia. Production by counties in 1912, each dot representing 500,000 short tons. - - - - State Boundaries. Districts—I. Connellsville; II. Cambria; III. Allegheny-Washington; *A*. Pocahontas; *B*. New River; *C*, Kanawha.

uniform in thickness. This fact makes possible the use of coal-cutting machinery on a big scale. Here again we have a marked contrast to the British coalfields, where narrow seams, far from uniform in thickness, and frequently far out of the horizontal, are often met with. The average thickness of the Pittsburg bed is 6 feet. This thickness is a very

economical one to work. Where much thinner seams have to be worked the cost of raising the coal is higher, and very thick seams are expensive to roof. Eighty-seven per cent. of the coal won in Ohio in 1912 was machine-mined. In Pennsylvania in the same year the percentage was thirty-three. This lower percentage is largely accounted for by the fact that the anthracite fields in the north-east of the State are unsuitable for the use of machines, the seams being narrow, heavily faulted, out of the horizontal, and often nearly vertical. Here we have the contrast between the undulating structure of the Allegheny Plateau and the crushed, folded, and faulted structure of the Appalachian Valley expressed in terms of coal-mining; while the advantages accruing from the favourable geographic conditions on the Plateau are clearly brought out in terms of cost of coal at the pit's mouth, which, in 1912, in spite of the high wages paid in the States, averaged, for the State of Pennsylvania in the bituminous fields $1.05, whereas in the anthracite fields the cost at the pit's mouth was slightly over double this figure.

The rivers of the coalfield flow in deep trenches, the walls of which are often 100 to 200 feet in height (Fig. 2). Within the trench, alongside the river a bench or terrace is usually found varying in width from a few feet to half a mile, and 10 to 20 feet above water level. The river is thus entrenched within its old bed. During the first uplift of the country, after it had been reduced by erosion to a peneplain, the old beds forming the present trenches were cut out. A subsequent uplift gave the rivers new cutting power. They then cut their present beds within the old trenches, and incidentally greatly facilitated the work of coal-getting. The terraces or benches produced in this fashion alongside the water form excellent sites for many mining communities. Connellsville, the centre of the coke industry, is on such a bench on the east bank of the Youghiogheny, where the river has exposed the coal bed (Fig. 4). Stockdale and Bellevernon occupy similar positions, the one on the west bank and the other on the east bank of the Monongahela. Most of the smaller towns and mining villages of the coalfield are similarly situated.

Those terraces also add greatly to the value of the river valleys as railway routes. Between Connellsville and Pittsburg the Baltimore and Ohio Railroad on the east bank and the Pennsylvanian Railroad on the west bank of the Youghiogheny make use of these terraces for their roadbeds. The Pennsylvanian Railroad in carrying coke from Uniontown in the Connellsville District to Pittsburg makes use of a series of these terraces first alongside Redstone Creek, a tributary of the Monongahela, and later alongside the Monongahela itself. In fact, in the coalfield most of the railways are confined to the river valleys owing to the dissected plateau structure of the country, and where these terraces are absent heavy expenditure is incurred in carrying the roadbed alongside the water.

The Pittsburg coal-mining district may be subdivided into three fairly distinct fields based on river valley and types of coal produced. (Fig. 3.) These are as follows :—

1. *The Connellsville Coking District.*

It consists of the counties of Fayette and Westmoreland, which roughly correspond to the lower Youghiogheny and some of the right bank tributaries of the Monongahela.

2. *The Cambria District.*

This district includes the county of Cambria and parts of the counties of Clearfield, Jefferson, and Indiana. It corresponds roughly to the Upper Basin of the Conemaugh River, a left bank tributary of the Allegheny.

3. *The Allegheny-Washington District.*

This district consists of the counties named, and is approximately the area drained by the lower Monongahela.

The following table gives the outputs for these three districts for 1912 :—

| | Million short tons. | |
|---|---|---|
| 1. Connellsville District. | | |
| Fayette, | 32·4 | |
| Westmoreland, | 30·6 | |
| | | 63·0 |
| 2. Cambria District. | | |
| Cambria, | 17·6 | |
| Clearfield, | 7·9 | |
| Indiana, | 9·2 | |
| Jefferson, | 5·4 | |
| | | 40·1 |
| 3. Allegheny-Washington District. | | |
| Allegheny, | 18·9 | |
| Washington, | 16·6 | |
| | | 35·3 |
| Total, | | 138·4 |

The above total is some 24 million tons short of the total produced in Pennsylvania in that year, and that difference was raised in a number of minor areas of which the county of Somerset lying SE. of the Connellsville District was the chief.

## The Connellsville District.

Iron ore, coke, and limestone are the fundamental raw materials of the iron and steel trade. With the first and last of these we are not concerned in this paper, but with the second we are very closely concerned indeed, since in 1912 nearly 50 per cent. of the coke made in the United States came from the Connellsville District. All coals are not suitable for the manufacture of coke. The coal for this purpose needs to be of such a character that when coked it will be a coherent yet porous mass which will break up into large blocks capable of bearing

a fair weight in the blast furnace. It will be remembered that the structure of the district consists of a series of gently sloping, parallel synclines and anticlines. Towards the eastern edge of the coalfield, this

FIG. 4.—The Connellsville Coking Area.

wave-like structure becomes more pronounced as the Allegheny Front is approached, and here one finds a number of detached pieces or outliers of the coalfield. A glance at the map and section of the district will show that one of these outliers of the main Pittsburg coal bed runs in a long narrow strip, roughly NE. and SW., some miles east of the Monongahela (Figs. 2 and 4). This outlier is in the form of a syncline,

and is separated from the main bed by an eroded anticline. It is about 60 miles in length with a width which varies from 2 to 6 miles, and it extends from Latrobe in the NE. to Fairchance in the SW. In this outlier the coal is of a soft and friable character specially suited for making coke. Across the centre of the district the Youghiogheny has cut a deep trench. To the north Jacob's Creek and Sewickley Creek, tributaries of the Youghiogheny, have laid bare the coal seam. To the south the headwaters of Redstone Creek and George Creek, tributaries of the Monongahela, have also cut deeply. Mines and coke ovens cluster thickly along these streams and along the edges of the outlier. Connellsville, situated as we have already seen on a river terrace where the Youghioghemy enters the coalfield, is the centre of the industry, and has given its name not only to the district but also to the coke produced.

Connellsville coke made in the old-fashioned beehive ovens on the coalfield was, in 1912, the standard blast furnace fuel of the United States, and commanded the highest price. The blast furnaces of Pittsburg and Youngstown, of Cleveland and Chicago, to mention but a few, got most of their coke by rail from the Connellsville District.

Modern practice tends to replace "beehive" coke by coke made in retort ovens, as many valuable by-products, such as gas, ammonia, and tar, are recovered in the latter process. For this reason there is growing up a pronounced tendency for the coking industry to shift from the coalfield to large manufacturing centres like Pittsburg and Youngstown, and to the lake shore smelting centres, as at Cleveland and Buffalo, where the by-products can be profitably used on the spot. Many cities on the shores of the Great Lakes and in large manufacturing districts now get almost their whole supply of gas for heating, lighting, and power purposes from retort ovens. Indianapolis, Hamilton, South Chicago, Milwaukee, and Duluth may be cited as examples. A counter tendency at work is the increased cost of coke made in this way. Partly because of the greater working and overhead expenses of retort ovens, the cost of producing retort oven coke in 1912 was roughly double that of "beehive" coke. Before any comparison of the costs to the smelter of the two kinds of coke could be made many factors would have to be considered, chief among which would be the freight on coal or coke from the mines to the works, and the precise value to the smelter of the gas and other by-products recovered where the more modern process is employed.

As many of the steel works recently established on the lake shores, such as the United States Steel Corporation's great plant at Gary, at the southern end of Lake Michigan, have installed their own batteries of retort ovens, to which they bring the coal from the coalfield by rail, it would appear that this process is the more economical of the two, and this is undoubtedly so where most of the by-products can be consumed on the spot.

Of the total amount of coke produced in the United States in 1912, three-fourths was made in beehive ovens, and of this "beehive" coke, two-thirds came from the Connellsville District. It perhaps gives some

idea of the size of this industry if one bears in mind the fact that over 50,000 car loads of coke leave the district every month. Should the practice of coking at the furnace, instead of on the coalfield, become universal, the rail traffic will be still greater, but instead of car loads of coke we will then have car loads of coal. The Pittsburg seam becomes less suitable for coking as we go westward, hence the change in the location of the ovens will not interfere with the great importance of the Connellsville District from the standpoint of the production of the finest coke. Its importance, however, would then be of rather a different character, as, instead of being the source of the finest coke, it will then be the source of the raw material needed for the manufacture of the highest grade of coke. This position of affairs would of course come to an end when the coal of the district becomes exhausted, and a recent estimate by the United States Geological Survey puts the life of the coal reserve in the Connellsville District at about 25 years. If this estimate is anywhere near the truth, the end of this great coking field, which has for so long dominated the pig iron industry in the States, is well within sight.

A further fact to be borne in mind in this connection is the increasing extent to which West Virginia coals are being used in the manufacture of retort oven coke. Coke can be made by this process from coals which would not produce good "beehive" coke, and this fact is probably reflected in the growing shipments in recent years of coal from the New River and Pocahontas Districts of West Virginia to the blast furnaces of Cleveland, Gary, South Chicago, and other smelting centres on the shores of the Great Lakes, where increasing numbers of retort ovens are being built almost yearly. The effect of this movement will probably be to lengthen the life of the Connellsville District.

The Connellsville District has been dealt with separately because of its very distinctive character and the peculiar position which it has occupied, and the part which it has played in the development of the coalfield as a basis for the pig iron industry.

With the two other subdivisions of the Pittsburg District it is not necessary to deal in detail, as they possess no very outstanding characteristics. The Allegheny-Washington District may be connected in one's mind with the production of an excellent steam and rich gas coal, while the Cambria District produces largely steam and domestic fuels, a considerable proportion of which finds their way eastward through the Appalachian ridges to tidewater ports on the Atlantic Coast, chiefly for coastwise shipment to New England.

Of the total amount of bituminous coal brought to the surface in Pennsylvania between one-third and one-half is retained for consumption in the industries of the State or is used for domestic or transport purposes, about half of the quantity so retained being converted into coke. Of the amount not so retained for consumption in the State, roughly one-third is shipped from the mines for railroad fuel. The bulk of the remaining two-thirds may be divided into two approximately equal parts, one of which moves northward and westward to the shores of Lake Erie for shipment as cargo and for use in the ovens of Cleveland

and Tonawanda, while the other moves eastward to the Atlantic tidewater ports of New York, Philadelphia, and Baltimore.

As has already been pointed out, the bulk of this eastward moving coal comes from the Cambria District, on the east and north-east edges of the producing area. This area being, as we have seen, on the Allegheny Plateau, all coal moving thence direct to tidewater must cross the Appalachian ridges. Here the chief geographic control appears to be not as one might expect the Allegheny Front, but the valleys of the Potomac, the Susquehanna, and the New River, which cut across the ridges of the Great Valley. A study of a detailed railway map will make this point clear. From the northern part of the producing districts a number of lines cross the Allegheny Front into the Great Valley, and then concentrate on a point just south of the junction of the two main branches of the Susquehanna, near the position of Sunbury. Beyond this point the lines fan out to the northern tidewater ports. About 80 miles south-west of this point another series of lines concentrate on the Juniata branch of the Susquehanna near Altoona, and go eastward *via* Harrisburg to Philadelphia and Baltimore. Another 80 miles to the south-west we find a great network of lines from the Connellsville and Pittsburg country all concentrating, after crossing the Allegheny Front, on the position of Cumberland at the great angle of the Potomac. From this point two great main lines run eastward to tidewater following the north and south banks of the Potomac through the deep water gaps which this river has cut in the parallel ridges of the Great Valley.

South-west of the position of Cumberland on the Potomac for a distance of 150 miles, no line crosses the sea of ridges, and it is not until a point is reached where the James River, by means of one of its head streams, has cut back close to the lower Greenbrier, a tributary of the New River, that a line is found crossing from the plateau to the piedmont. This line, the Chesapeake and Ohio, using for its roadbed the valleys of the lower Greenbrier and upper James, serves as an outlet to Newport News for the coal from the New River and Kanawha fields of West Virginia. Some forty miles south of this line the Norfolk and Western and the Virginian Railroads make use of the great gorge of the New River for their roadbeds, and carry through it the famous Pocahontas steam coals to tidewater at Norfolk on the south side of Hampton Roads opposite Newport News.

The first three routes, together with the New York Central in the Hudson-Mohawk Valleys, are connected on the one hand with the Pittsburg District and on the other with the three northern tidewater ports, New York, Philadelphia, and Baltimore. The last two routes link the West Virginia fields with Hampton Roads. This roadstead is really the estuary of the James River where it enters Chesapeake Bay. From the standpoint of coal export otherwise than to Canada, Hampton Roads handles almost the whole of the trade through the ports of Newport News and Norfolk; while from the point of view of coastwise shipment these two ports stand second to New York, with Philadelphia and Baltimore a bad third and fourth respectively.

Before the war the export to Canada was three times as large as the export to all other countries. The bulk of this movement across the Canadian frontier went through the ports of Buffalo and Cleveland on Lake Erie, the balance going by rail.

Compared with the export coal trade of Great Britain, that of the United States before the war was quite small. The question as to how far British supremacy in this respect is going to be maintained in the future is one which involves considerations with which it is beyond the scope of this article to deal, but it may perhaps be suggested in passing, that, in view of the greatly increased cost of production in the British coalfields, the very favourable geographical conditions under which coal is mined in the United States may help to bring about a situation in which the British exporter would have to reckon seriously with a very vigorous competitor on the other side of the Atlantic. The chief geographical disadvantage under which the United States labours from the point of view of export is the distance from tidewater of her coalfields, and the expensive rail haul thus made necessary increases from two and one half to three times the cost of coal alongside ship. Viewed from this standpoint of coal export the possession by the United States of large supplies of food and raw materials within her own borders, however desirable in other respects, must be regarded as a disadvantage, since it means that she does not need, as does Great Britain, a bulky raw material like coal to freight her ships on the outward voyage.

In conclusion it may be stated that those advantages of horizontal seams of an economical thickness which is nearly uniform over great areas, and of deeply trenched and terraced river valleys which have exposed the coal and provided easy routes and sites for settlement, all of which we have already studied in the Pittsburg District, are present also in the three districts of West Virginia situated on the New and Big Sandy Rivers, from whence comes, as we have seen, the coal handled at Hampton Roads. A marked contrast between the two areas lies in the fact that whereas in the Pittsburg District nearly half of the coal won is consumed for industrial purposes within the State, practically the whole of the coal brought to the surface in the West Virginia fields is shipped in about equal parts either north and north-west to the shores of the Great Lakes and their fringing States or eastward to tidewater at Hampton Roads.

---

## PRIMÆVAL ASTRONOMY IN SCANDINAVIA.

By Gudmund Schütte, Ph.D.

*(With Illustrations.)*

It is well known that the powers of Heaven were worshipped by the primæval Aryans or Indo-Europeans. Cæsar says of the ancient Germans that they had no other deities than Sun, Vulcan, and Moon, and, according to Procopius, the only deity of the Slavs was the Thunder God. Sacred stones with sun circles are frequent in Scandinavia, and

an especially interesting image of the sun, represented in a chariot driven by a horse, was lately dug out on the island of Zealand. The worship of the Moon appears from the common Aryan name of the "month." An Aryan name of the Thunder God was *Perkunos*, which occurs in somewhat varying forms among Lithuanians, Slavs, Indians, and Scandinavians; according to sound laws, the Keltic form would have been **Herkunos*, and a god of this name must be substituted for that thunder god who is in Roman interpretation disguised under the Greek-sounding name of "Hercules." The primæval "Father Heaven" appears in Indian as *Dyaus pitar*, in Greek as *Zeus pater*, in Latin as *Dis pater*, *Dju-piter*, *Ju-piter*, and the Germans and Scandinavians seem to have worshipped him as *Ziu*, or as *Tyr*.

Apart from such primæval deities, more or less common to several members of the Aryan family, we notice in the religion of Scandinavia various elements of secondary origin, imported from the Orient or from southern and western Europe. The general occurrence of such influences appears from several facts, viz. the adoption of the Babylonian decimal system which the Scandinavians shared with the other Aryan nations; the spread of megalithic burial rites, starting from the eastern Mediterranean, and establishing secondary centres in Portugal, Gaul, and southern Scandinavia; the propagation of the Egyptian, Cretan, and Sicilian Bull worship, with secondary centres in Gaul and in the Jutland district of the Kimbri.

Among the heavenly powers with traces of foreign influence, we first notice the Sun, of whom the Danish image mentioned above is formed in the Greek dipylon style. The Thunder God's well-known *hammer*, a symbol of lightning, originates from the double axe of the Cretan Zeus, a sign also occurring in the Hettitic thunder worship. His representation with three heads on the Danish golden horn of Gallehus reappears in Gallic worship, and even his Teutonic name, O. N. Thorr, O. Germ. Thonar, is of Keltic origin, identical with the Jupiter Tanarus of the Britons.

The latest heathen importation was the adoption of the week with its seven days, according to the Roman model named from gods, among whom the heavenly powers form the majority: Sun, Moon, Tyr, and Thorr.

Such are the main outlines of Scandinavian mythology, as regards the heavenly powers; *cf.* my recent monograph *Hjemligt Hedenskab*, 1919. These general observations form the background of a discovery in the field of mythical astronomy, provisionally set forth in the work mentioned, ch. xiv.

The province of Bohuslän, originally Norwegian, now Swedish, contains the richest store of Scandinavian rock carvings, the so-called "helleristninger," specimens of which have been collected and reproduced by Baltzer in his *Glyphes des rochers du Bohuslan* (publ. Göteborg in two series, 1881 and 1891). Scholars have discussed the mystical carved signs over and over again, comparing them with the well-known legends of Icelandic mythology. However, the results have hitherto been meagre.

But when looking at Pl. 49-50 in Baltzer's Series I., it suddenly struck me that it contained an obvious representation of *Charles's Wain* and the *Milky Way* in fairly correct juxtaposition. Looking farther afield, below a natural cleft in the rock, I discovered a series of signs mostly belonging to the classical zodiac, and in fairly correct sequence; viz. *Cancer* vis-à-vis to the *Little Dog*; *Bull*; *Foal* beside *Pegasus*; and *Capricorn*. (*See* Fig 1.[1])

So far, no doubt seems possible. The question is what to make of the figures in the space between the extremities mentioned, that is to

FIG. 1.—Rock Carving from Bohuslän (after Baltzer).

say, of those which are divided from the rest of the rock carving by a natural cleft to the left.

First, we notice two pairs of animals, standing vis-à-vis. Just Bing has identified them with the stereotyped pigs occurring on various Scandinavian monuments. But if we are to interpret the carving as a continuous astronomical map, we must reject this view, and identify the two pairs concerned with the *two Hounds* and the *little and larger Lion*. Even if both of the latter figures have assumed the shape of dogs, we

[1] In this figure, as in the following ones, the signs and stars interpreted by me are emphasised by black colouring. The entire carving, of which Fig. 1 forms a part, was reproduced in the review of my book *Hjemligt Hedenskab*, in *The Scottish Geographical Magazine*, vol. xxxvi., p. 139-40.

cannot be surprised, as the lion is an exotic animal in Scandinavia. The juxtaposition of the two pairs is as typical of the rock carving as of the traditional symbolic astronomy.

Then follows a third pair, two almost identical persons with sticks, sitting vis-à-vis. We might be inclined to recognise in them the astronomical *Twins, Castor and Pollux*, were there not a third figure of the same sort turning his back to the problematic Pollux. We might, though only hesitatingly, suggest that the three-twin child might be the

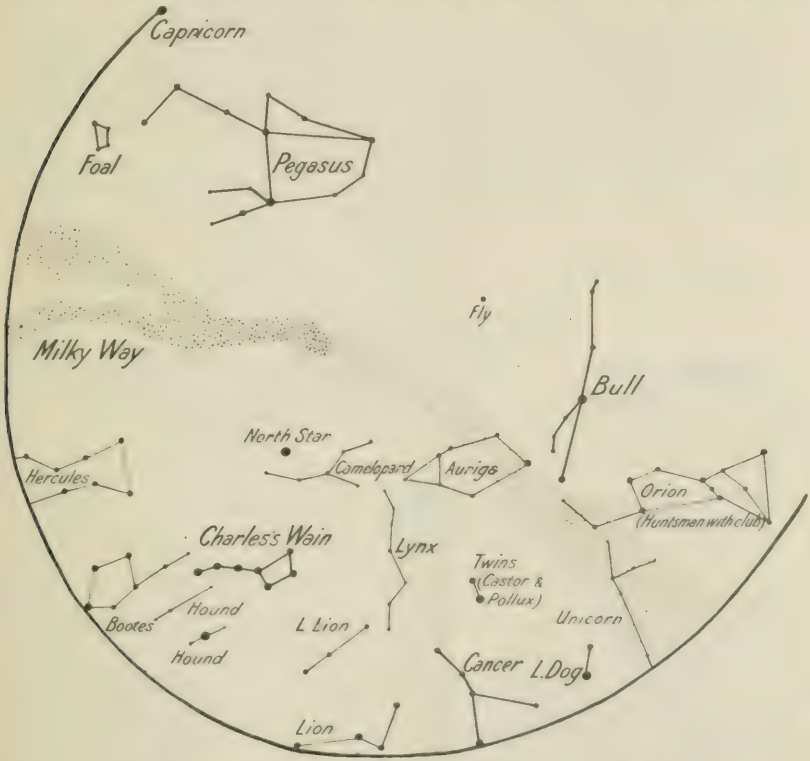



Fig. 2.—Constellations of October 19th at Bohuslän (*cf.* Fig. 1).

coachman *Auriga*, whom we shall undoubtedly meet with in another carving. A giant farther to the right, waving his axe, might be the club-bearing huntsman *Orion*, while two persons to the left of the "Twins" might correspond to *Hercules* and *Bootes*; the stellar figure of the latter appears in a Danish carving. We lay no great stress upon these questionable equations, but only want to point out that the ancient stellar symbols contain a series of male figures sufficiently numerous to account for the section of the rock carving concerned.

A long-shaped animal to the right of the "Lions" seems to be the *Lynx*. A stag beneath the Twins might be the *Camelopard*, but in this case certainly rather ought to stand above Charles's Wain. A second

stag, standing below the Twins almost directly at the dividing cleft of the "Zodiac," would correspond to the *Unicorn*. As both Camelopard and Unicorn are foreign to the Scandinavian fauna, the transformation into stags is but natural.

Finally, a cross above the presumable Lynx would correspond to the *Fly*.

Taking it as a whole, the signs in the space between Charles's Wain and the "Zodiac" appear to have been represented in a partially confused sequence. This confusion is sufficiently explained by their inferior importance as compared with that of the figures on their flanks.

Even if our interpretation might seem questionable in several cases, its general correctness is vouched for by the fact that **all the astronomical figures concerned are to be seen on the sky of Bohuslän from about September 23rd to October 21st**, *i.e.* corresponding roughly with the autumnal equinox—*cf.* Fig. 2, which represents the constellations of Oct. 19th. It is drawn from Gad's *Stjernehimlen for det*

Fig. 3.—Rock Carvings from parish of Tanum (after Baltzer).

*sydlige Skandinavien*, a movable astronomical map for the horizon of 58° north lat.

A second and equally interesting sky map occurs in Baltzer's Series II., Pl. 3 and 4, No. 13 (*cf.* Fig. 3). We notice here a long series of astronomical signs in admirably correct order, and with no collateral figures in the same carving to rival them. In the middle is *Charles's Wain*, with its right separate section arranged as a diagrammatic figure, 3 times 3 points; above it is the *North Star*; to the right are the *Lynx*, the *Twins*, and *Orion*; to the left *Bootes*; in the lower line *Cancer* and the *Lion*, the latter extending along a ship figure.

If the reader is still too disposed to doubt the correctness of these interpretations, all doubts will vanish by looking at the three symbolic figures of the carving. At the left extremity appears the *Serpent*, with its head turned to the left, almost exactly imitating the position of the stars concerned. Then follow the *two Hounds*, the one standing upright, the other lying down. One might scarcely recognise the figure of the latter as representing an animal, but at least its curving tail is unmistakable.

The map corresponds to the constellations occurring actually from January 17th to June 21st (*cf.* Fig. 4). The correspondence is particularly evident at the vernal equinox. We notice that the selection of signs is to a great extent identical with that of Fig. 1; only the signs of the zodiac are almost completely missing.

A third map occurs in Baltzer's Series I., Pl. 41 (*cf.* Fig. 5). In this various signs of the zodiac are the principal subject of representation. We notice: *Fish*, *Dolphin*, *Serpent*, *Scorpion*, *Archer*, *Fox* (or *Hound*!). The sequence of 1-4 is correct, whereas the Archer and the presumed Fox have been moved too far to the right; they seem to form a hunting

FIG. 4.—Constellations about the Vernal Equinox.

scene which has been selected for separate representation. The corresponding stars appear from about June 9th to July 11th, *i.e.* about the summer solstice (*cf.* Fig. 6).

It is worth noticing that the Scorpion and the Fish, like the Cancer of Fig. 1, seem to be quite unique in the rock carvings of Bohuslän. As Scandinavia possesses no scorpions, it is not surprising that the figure of this animal has been somewhat misrepresented: the four legs to the left have been assimilated into one mass, whereas those to the right have been pushed from the thorax to the tail. However, the typical features of the scorpion remain unmistakable: the projecting claws, the thorax with the left row of legs starting from it, and finally

the tail curving to the left as in the figure in the Chaldæan zodiac (see Fig. 7).

The occurrence of an exotic animal like the scorpion is most conclusive as to the interpretation of the symbolic map concerned.

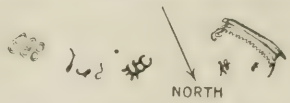



FIG. 5.—Fragment of Rock Carving from parish of Tanum (after Baltzer).

FIG. 6.—Constellations about the Summer Solstice.

FIG. 7. The Chaldæan Zodiac (according to A. Jeremias).

A carving of limited extent, Baltzer's Series II., Pl. 1 and 2, No. 6, contains a man holding a horse, and above him a collection of points (*cf.* Fig. 8). It is obviously the *Coachman* and *Cassiopeia* (*cf.* Fig. 9).

FIG. 8.—Rock Carvings from Tanum (after Baltzer).

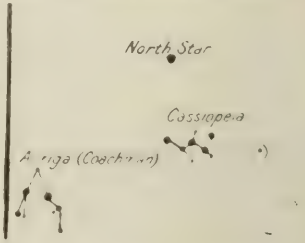



FIG. 9.—Auriga and Cassiopeia.

The angle formed by the Coachman's arm and the horse's head and neck seems to correspond to the lines combining the star $a$ with $\beta$ and Capella.

Finally, we may draw the reader's attention to Baltzer's Series II.,

Pl. 3 and 4, No. 15, probably representing the *Milky Way*, which we have already noticed in the carving Fig. 1. (Figs. 10 and 11.)

The Milky Way is here represented without any symbolism, whereas the Chaldæan picture of the zodiac represents it as a serpent (*cf.* Fig. 6). The Chaldæan representation fairly corresponds to the Scandinavian *Miðgarðs-ormr*, the famous serpent that surrounds the world, and whose second name, *Jormun-gandr*, recalls again the ancient German name of the Milky Way—*Irmen-strasse*, "the Enormous Road"; *jörmun-* is the normal Scandinavian form of German *irmen-*. Though the primæval rock carvings bear no witness to the belief in that cosmical serpent, it seems to us likely that the myth came into existence through oriental influences.

After commenting on the rock carvings of Bohuslän, we must still briefly consider the possibility of discovering stellar maps even in Denmark.

The archæologist Henry Petersen in *Aarbøger for nordisk Oldkyndighed*,

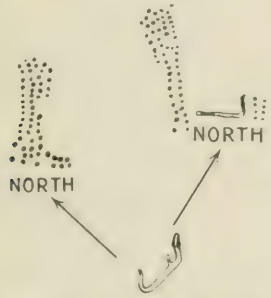



FIG. 10.—Fragments of Rock Carvings from the parish of Tanum (after Baltzer).

FIG. 11. The Milky Way.

1875, 402 seq., examined the already discovered "Helleristninger" in Denmark. It appears from his researches that the principal area of sun images and cup-formed depressions is *North Zealand*, or more exactly the regions about the great firth of Isefjord. It is also here that the famous sun-chariot of Trundholm was found, in the sheriffdom of Ods Herred, where sun images on stones are especially numerous. This geographical distribution seems to point to an influence radiating from the north Scandinavian peninsula, the principal focus of the rock carvings. Several of the Danish carvings appear on stones in the interior of megalithic graves and, according to Henry Petersen, must belong to the stone age. Others, such as two stones with sun images and ships, found in Ods Herred, distinctly suggest the bronze age, as do most of the carvings in Bohuslän.

I believe that I have discovered stellar maps on two stones belonging to megalithic graves. These stones contain no symbolical signs like those of the carvings at Tanum, but one diagrammatic figure, already observed on the carving represented in our Fig. 3, can at least be

observed. This is the three times three points, arranged in rectangular form. See Figs. 12 and 14, showing stones from Venslev and Dalby.

The figure concerned, as we mentioned on p. 248, corresponds to part of *Charles's Wain*; both the Zealand stones, in addition, represent the remainder, the characteristic "wagon." On the stone of Venslev (Fig. 12) the likeness to the carving from Tanum is most striking.

Above Charles's Wain on the Venslev Stone, we notice a single point —*the North Star*, as on the Tanum Stone, Fig. 3. Above this isolated star, again, follow two groups which are perhaps less easily identified; though doubt is not excluded, I believe we can recognise the square form of *Cepheus*, and the "Double-V" of *Cassiopeia*. To the right, in correct position in relation to Charles's Wain, we notice the characteristic figure of the *Auriga*. Attention may be drawn to the fact that the

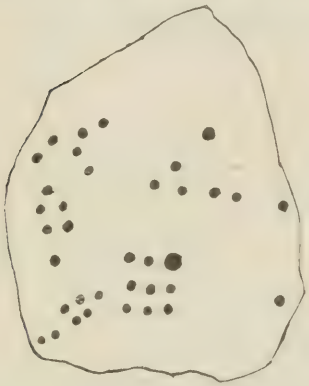


FIG. 12.—The Venslev Stone.

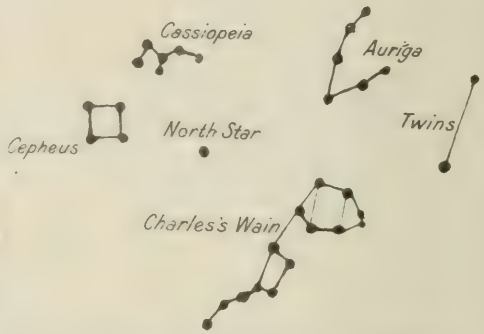



FIG. 13.—Constellations adjacent to North Star.

figure of Cassiopeia and the symbol of the Auriga and the horse occur in a carving from Tanum (Fig. 8).

The stone from Dalby stands facing eastward on the top of a dolmen. *Thorkild Gravlund*, the discoverer of the carvings, long ago identified a section of its points with *Charles's Wain*. Though the diagrammatic posterior part with the three times three points is unmistakable, the entire constellation is scarcely as distinct as the corresponding one on the Venslev Stone. Others, however, are more obvious. We notice the *Lynx*, the *Lion*, *Virgo*, and *Bootes*. The Lynx and Bootes especially are strikingly similar to their models. The mutual relations of the figures are correct within two sections, viz. (*a*) Charles's Wain and Lynx, (*b*) Lion, Virgo, and Bootes. The relations of section (*a*) to section (*b*) are not so correct, as the distance from Charles's Wain to Bootes is far too large. But this inexactitude does not outweigh the remarkable correctness of the other localisations.

So much for the Danish carvings, which may, if supplemented by further examples, perhaps prove no less important than those of Bohuslän.

It may be remarked in regard to the rock carvings in general, that the more comprehensive specimens of them seem to coincide with important points in the chronology of the year, viz. the autumnal equinox, the vernal equinox, and the summer solstice. This fact emphasises their religious significance. We may assume some connection with annual festivals. Apart from that, the prominent position of astronomical lore in our forefathers' mind may be explained by the fact that the stars served as guides to the maritime merchants on their long and dangerous way from the south towards the north.

The question of how the carvings were carried out, whether from memory or from some model, must next be considered. We may at once exclude the third possibility that the luminous signs of the sky

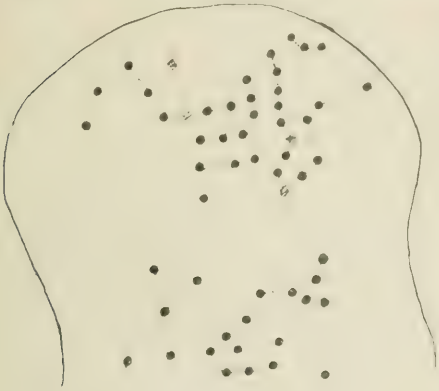


FIG. 14.—The Dalby Stone.
(From a drawing by Th. Gravlund.[1])

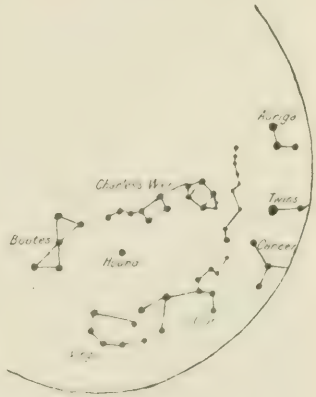



FIG. 15.—Constellations, *c.* May 20.

were copied directly on the rocks during the night, for stone-working at night would have been too difficult.

As far as we are able to judge, most of the figures concerned are not more correct than might be expected from a carver working from memory. But at least Fig. 3 (also perhaps Fig. 12) is so wonderfully exact that it would scarcely be possible to execute it without the aid of the original or of some representation. We may then suggest that the carver made by night a model on a wooden sheet from which he could in the day-time transfer the figures to the rock surface.

Sceptical critics will, no doubt, find my suggestion too bold, based on too slight a foundation. Certainly, my observations require support by the aid of expert astronomers and archæologists, *e.g.* Scandinavian archæologists have tried to point out that northern Jutland had direct

[1] The dotted lines have been added in order to indicate the constellations, and the shaded areas show where the depressions in the rock are not quite distinct, and only doubtfully of artificial origin.

maritime connection with the far south as early as the stone age. Further observations of that sort would be welcome in order to supplement the glimpses offered by our interpretation of the Scandinavian rock carvings. But the assumption of such early transference of astronomical ideas from the Orient to Scandinavia opens up a perspective of bewildering vastness. The revolution in our traditional ideas about Scandinavian mythology would be too radical, the consequences too difficult to contemplate. We must refrain from entering the labyrinth of such puzzling problems. And so we conclude our sketch in the hope that it may be sufficient to draw the attention of competent scholars to the fascinating enigma of the Scandinavian rock carvings.

---

## BAKU AND THE CASPIAN.

By Lt.-Col. A. C. Yate, F.R.G.S.

(*With Illustrations.*)

Since the overthrow of the Romanoff dynasty—which, personally, in the lurid light of Bolshevism and apart from the Rasputin infamy, I deplore—the Caucasus and the Caspian have become the centres of such a complex web of war and intrigue that I am tempted to conclude my reminiscences of travel in 1881 from Persia, into Russia, with a *résumé* of my experiences on the three occasions when I crossed or coasted the Caspian, viz. in June 1881, July 1885, and in September-October 1890.

When at mid-day on 26th June 1881 the news suddenly reached us that the steamer for Baku had been sighted and signalled an hour before, and was close in to the anchorage at Enzeli (only boats of very light draught can come close in to shore—larger boats anchor a mile or so out), we snatched a few mouthfuls of breakfast, packed our kit, and went off in a brief space in the boat which was waiting to take us on board. It proved to be the mail-boat bound for Baku and Astrakhan. We got on board at one and sailed at 2.30 P.M., under the densely wooded slopes, relieved by occasional towns, hamlets, houses, and cultivated patches, which border the Caspian from Enzeli to Lenkorán. In the distant background to this wealth of vegetation near the shore stretched north and south, as far as the eye could see, a lofty range of mountains, the snow-streaked summits of which were half shrouded in cloud and haze. At the small port of Astara, about 25 miles south of Lenkorán, a little river, flowing down from the interior, marks the frontier between the Russian Caucasus and the Persian province of Gilan. Russian Astara lies on the north, Persian Astara on the south bank of this river. (In the eighteenth century the Persian frontier was at Derbend, 150 miles north of Baku.) The view of the coast from the steamer was very fine. The thatched and wattled houses and cottages, relieved here and there by some more striking public edifice constructed of brickwork and masonry, lay embedded in a luxuriant mass of verdure. Behind the town rose tier upon tier of

wooded hills, the whole surmounted by the half-wooded, half-barren mountain ridges, on the highest and most distant peaks of which one could detect snow. Some of the slopes of the lower hills were cleared and cultivated. The manufacture and export of salt is largely carried on at many points on the coast, the waters of the Caspian being exceptionally salt.

Of the life we led and the people we met on a Russian steamer of the Caspian in 1881 it boots little to speak to-day. One only, an elderly Georgian in the Russian service, wearing several Russian medals and decorations, and who was said to have done the Russian Government excellent service at various times, seems to merit recall now. He spoke Persian, and in that language we occasionally discussed political questions. One day—after looking round to see that no Russian was within hearing—he suddenly said to me: "What a pity your Lord Beaconsfield is dead!" Surprised, I asked "Why?" He replied, "Every man in Russia feared Beaconsfield, but no one fears Gladstone." Beaconsfield had then been dead two months, and to-day the last two volumes of Monypenny's and Buckle's *Life of Disraeli* have just reminded us of Bismarck's verdict on "the old Jew" at the Berlin Conference. It was that Conference which opened the way for the German "Drang nach Osten," while it, temporarily at least, put the drag on Russia.

The Turk fell more and more under German influence, until even Lord Salisbury bitterly confessed that we had put our money on the wrong horse. The Anglo-Russian Agreement of 1907 was a poor and futile response to the Baghdad Railway and German penetration into the Middle East. Afghanistan never even acknowledged and Persia early repudiated it. Russia abused its provisions brutally before the war; while round Britain's neck it was little more than a millstone. The war has completely changed the destinies alike of Railway and Agreement, but into what form the Middle East will settle itself under the pseudo-Peace, time alone can tell.

The six hours which we spent at Lenkorán on the 27th of June, anchored close off the shore, brought us into touch with a scene and incident which then aroused the keenest excitement, but to-day would be dismissed as a mere episode in a reign of Bolshevistic anarchy. We found the beach thronged with a crowd, including many ladies smartly turned out. We learnt that in consequence of the murder of seven individuals—a murder in which as many as forty persons were said to have been implicated—the Governor of Baku, attended by his staff, had visited Lenkorán, and was about to return in our steamer to Baku. His Excellency's departure was at once an official and a social event which appealed alike to the bureaucracy and to fashion. As a matter of fact, in the dull seaside garrison town, the arrival and departure of the mail-boat are "events," and as such not to be neglected. The excellent *chef* of our steamer also rose to the occasion, and surpassed himself. The temperature was high, and the iced soup and boiled sherbet which he served to us showed the instinct of a *connoisseur*. We left Lenkorán at 5 P.M. and reached Baku at 7 A.M. on 28th June.

Many pens—let me specify those of Jonas Hanway in the forties of the

eighteenth century, Sir John Malcolm in the early nineteenth, and Colonel Valentine Baker, Captain Marsh, S. G. W. Benjamin (the first U.S.A. Minister to Persia), the Comte de Cholet, M. Edgar Boulangier, Colonel A. Le Messurier, and the Hon. G. N. Curzon in the seventies and eighties of the same century—have described Baku. It is the home of romantic legend as associated with the Kal'ah-i-Dukhtar, or the Maiden's Tower, and it has been for centuries, I gather, the resort of Zoroastrian and Hindu devotees, who have sought the path of salvation in the maintenance of sacred and undying fires. Jonas Hanway, who visited it about 1745, put on record that it had the best haven on the Caspian, and that it supplied rock-salt, brimstone and naphtha to all surrounding countries. When I first visited Baku in 1881, the exploitation of its naphtha wealth had been well begun, but even fifteen years before that we find Mr. R. J. Watson in his *History of the Kājār Dynasty* (London, 1866) writing: "At the extremity of the peninsula of Absharon, which juts out from the western shore of the Caspian Sea, stands the fortress of Badkooba, or Bakoo, a place celebrated chiefly on account of the ever-burning fires of naphtha in its vicinity, which attracted the adoration of the fire-worshippers of old, and which are to this day constantly tended by a succession of priests from India." Persians always speak of Baku as "Bādkubā." In the century which preceded the treaty of Turcomanchai, by which the Russo-Persian frontier west of the Caspian was, in 1828, definitely settled, Trans-Caucasia was a shuttlecock between the battledores of the Czars and the Shahs. It finally remained with the Czars until Czardom fell, seemingly, for ever. With Bolshevism a new era commenced, and it is for the Entente and Bolshevism to settle what the character of that new era is to be. No Russian, be he Bolshevist or Nationalist, could calmly contemplate the loss of Baku, which supplies every steamer and railway from Samarcand to Batoum and from Julfa to the Upper Volga with fuel;[1] whereas on the other hand the Entente, having internationalised the Bosphorus and Dardanelles, thrown the Black Sea open, decided that France in Syria and Cilicia and Britain in Mesopotamia shall support Armenia, Georgia, and the Tartar Republic of Azarbaijan in their independence, and wishing to retain and control Batoum and Trebizond as open ports for trade between Europe and the East, will not readily consent to forgo advantages to attain which it has sacrificed much.

The Caspian Sea is known to Islam as Bahr-i-Khizr—*i.e.* the Sea of Elias—and Jonas Hanway, after describing a steep hill crowned by a fort close to Baku which he and his companions visited, says: "This romantic scene the Persians and Tartars believe to be the residence of the prophet Elias when he fled from Arabia." Subject to Persia as this country was in the eighteenth century, the population round Baku was largely Tatar, and, as we know, has to-day asserted itself as the independent Republic of Azarbaijan, with its capital at Baku. Of that capital, more or less as it

[1] Vol. ii. Nos. 18 and 27 of *The New Russia* contain articles by M. V. Minorsky which make it quite clear the Russian Liberation Committee has every intention, when it gets the power, of reimposing the old Russian hold in Trans-Caucasia and Persia, if it can.

is to-day, the most complete description with which I am acquainted is to be found in M. Edgar Boulangier's *Voyage à Merv* (Paris 1888), Chapter X., and the most up-to-date is that of Mr. Ernest Betts in *The Near East* of August 5, 1920.

My first impression of the place, as I sighted it from the steamer on the morning of the 28th June 1881, was of a "barren waste of undulating hills, relieved by a town, a harbour, oil-pits and factories, barracks, cemeteries, and a naval dockyard." To this let me add "the tall massive tower, now used as a lighthouse, known as Kal'ah-i-Dukhtar, or Maiden's Tower,[1] three half-ruined pillars, the old Fort on the hill in the heart of the town (its stone walls and moat are still visible, and in it are barracks, magazines, the garrison library and other military institutions), and the old Palace situated close to it. Boulangier, who visited Baku in 1886, speaks of all then as "monuments remarquables de la vieille cité en train de disparaître." We have yet to learn whether General Dunsterville or the English Mission, which has been recently released from a Bolshevist prison at Baku, found and left them standing. My impression is that the solidity of the masonry would for a long time resist any sort of high explosive.

The harbour is spacious and sheltered from the prevalent northerly winds and storms by a promontory (Apsheron) and several islands. It is, in fact, open only to the SE. Sailing craft and steamers thronged it, among them being the small steam-yacht which the Shah, by the Czar's courtesy, was allowed to maintain on the Caspian.[2] It was a poor little boat at best. I am open to correction, but I do not recollect that history associates naval supremacy with the name of Persia, famous though it has been in the past for soldierly and military prestige on *terra firma*. The great Admirals of Islam must be sought among the races that dwelt along the shores of the Mediterranean, the Red Sea, the Indian Ocean, and the Persian Gulf. It is from the Arab that the greatest naval power that the world has yet seen borrowed, doubtless through the Spaniards, that title of "Admiral" (Amir-al-bahr), which it crowned with fame in the days of sailing ships and which it has maintained at the same high level in the ironclad era. In the dockyard at Baku lay half-a-dozen dismasted gunboats. The distance from the oil-factories on the NE. of the town to the dockyard on the south was, I estimated, from 2 to 2½ miles. The town of Baku is built partly on the level strip near the shore, and partly on the slope of the hill behind it. The entire seaport of the town is one long street or quay, with a high parapet on the sea side, and shops and business premises on the other. It is the Thames embankment or the quays of the Seine on a small scale. We saw naphtha exuding from the soil almost everywhere. Baku in a strong north wind is what the visitor will not forget. We faced it on June 28, 1881, when we walked back from the dockyard to

[1] A Khan of Baku confined there his daughter, when she refused to accept the husband whom he had chosen for her. Rather than yield, she sought death finally, by throwing herself from the parapet of the tower.

[2] The sovereignty of this Persian Sea was ceded to Russia by the treaty of Gulistan in 1813.—General Sir T. E. Gordon, *Persia Revisited*, p. 43.

the town, the wind and whirls of dust and fine grit taking us full in the teeth. However, we were out to see Baku that day, and wind and dust had just to be taken as part of the day's work.[1] Eastern habits of early rising must prevail at Baku, for I find that, as soon as we landed, we went to a bank or exchange agent and changed Persian silver and a circular note or two into Russian paper, and, having done that, we took a cab to the railway terminus, and left by the 8.30 train for the oil-fields at Balakhana, distance 10 miles. Surkhana, where Guebres and Hindus maintain or used to maintain sacred and everlasting fires, is reached by a branch or continuation of the Balakhana line. We had no time to go there. Those who are curious about these things should read the 57th chapter of Jonas Hanway's first volume (A.D. 1743), and p. 386 of Boulangier's *Voyage à Merv* (1886). My impression in 1881 is thus given: "A more dreary repulsive place than these oil-pits I never saw; the stench of naphtha pervaded everything; every hollow in the ground was a naphtha reservoir. Hundreds of engines were pumping up a seemingly inexhaustible stream of oil. The force with which this liquid, when first broached, is expelled from the soil is well known. After roaming about such a scene for a good hour we were glad to return to the station, and take the train back to Baku. We arrived there at 1 P.M. The heat was intense. I had not at that time made my acquaintance with the heat of Upper Sind, with which in subsequent years I became very familiar, but I found that, be it Baku, or be it Sibi, or Jacobabad, they shared alike the conviction that the legendary "hell" of a future existence was a superfluity, as long as the record for heat was held by them.

The public gardens which existed at Baku in 1881 had been artificially created by removing the native soil and replacing it by good soil, brought at considerable expense from Lenkorán. In that imported soil, trees, shrubs and flowers had been induced to grow. It is to these gardens that Baku society flocked in the evening. After dinner on the 28th June we took a stroll along the quay, and then up along the south side of the town, through the public garden and under the old walls, and close by the handsome sculptured gateways of the old Palace.[2] We then returned to the gardens, and found the band playing and society gathered together. The Summer Club was situated in the garden, a fine building consisting of reading, dining, card and billiard rooms, also a buffet. We were introduced by a member, and on payment of a small fee became honorary members for the evening. I was disappointed to find, besides Russian journals which I could not read, only one German paper. However, we found excellent cigars, and about midnight enjoyed an excellent supper of cold sterlet and horse-radish sauce and new potatoes, washed down with iced Russian

[1] His Excellency the first U.S.A. Minister of the Court of the Shah writes feelingly of "the fine dust blown from the hills in the terrible wind-storms," and adds, "During our stay it blew for two days from the north, like the Mistral. Men walked the streets with mouth, ears, and nostrils muffled."

[2] See Boulangier, *Voyage à Merv*, p. 340, for an illustration of "Porte des Khans au Vieux Bakou," and Benjamin's *Persia*, p. 17

beer of excellent flavour. The Marine band played till 11 P.M., and played well. Russians of all classes seemed to be there, strolling through the gardens and seated near the bandstand. The card and billiard rooms were much frequented, and play, I heard, was high. After the band, all turned to supper, tables being laid out under the trees. There is one thing that I noticed about Baku, in all my three visits, that, be it hotel or club, and be the sanitation the *ne plus ultra* of negation, the food and drink were good. In the hot weather the upper classes of society at Baku, especially the ladies and children, migrated to Lenkorán, where the climate is much more temperate.

In 1881 the Caspian was quite unconnected by rail with Central Russia, and with Central Asia only by a crudely laid line from Krasnovodsk Bay to Kizil Arvat.[1] Batoum and Poti, on the Black Sea, were connected through Tiflis with Baku by a railway completed in 1883. It was at Tsaritsin, on the Volga, 300 miles above Astrakhan, that in 1881 we boarded the Russian railway to Moscow. Before the nineteenth century ended, Vladikavkas and Baku, *viâ* Petrofsk, were linked by rail with Rostof and Tsaritsin, and Tashkent was linked with Moscow through Orenburg. There is certainly food for reflection on the vagaries of fortune in the march of events around the Caspian from 1880 to 1920. Till the eve of the war in 1914 all seemed to progress to Russia's satisfaction. The Persian was consistently and pitilessly bullied, and the development of the great Trans-Caspian Province, stretching away to the confines of China, went on apace. Bolshevist Khanates and Trans-Caucasian Republics were not dreamed of. The Colossus of the North had got its elephantine foot on the necks of them all. War and Revolution ended all this; and a few weeks ago, when the Bolshevik wave threatened to burst the barriers between itself and conservative Europe, the *débâcle* set in. Poland, guided by the counsels of Marshal Weygand, was saved alike from the Teuton on the West and the Bolshevist on the East, and Wrangel and the Cossacks emancipated the Don basin and all to the south of it from Soviet tyranny. At the same time the Cossack Corps of the Persian Army drove the Bolshevists out of Resht, and defeated sundry Bolshevist attempts to land on the south shore of the Caspian. The wheels within wheels that find their motive power amid the forces which racial, political, financial and commercial aspirations generate in the Caucasus and Trans-Caucasus may be imagined by those who know something of the country and its peoples and of their history. But there are wider ambitions than these. What does the world's commerce gain by an open Dardanelles, Bosphorus, and Black Sea, and by free ports at Batoum and Trebizond, if the independence of Trans-Caucasia is a dead letter? The Entente, as I understand, aims at keeping those routes open, as the Suez Canal and the Baghdad Railway will be open to the traffic of the world. It is to be borne in mind that the continuation of these routes eastward will

[1] See Chapter XV. of Marvin's *Reconnoitring Central Asia*. General Annenkoff and Prince Khilkoff, respectively designer and constructor of the Trans-Caspian Railway, were still on the Oxus in September 1890, when I visited Tashkent *viâ* the Caucasus and Samarcand.

The Harbour of Uzun-ada, which in 1890 was the terminus, on the east shore of the Caspian, of the Trans-Caspian Railway. 1890.

become ultimately the great Trans-Continental links across Asia between the Atlantic and the Pacific. Railways must converge on India; and to do so they, as far as we can judge, must traverse Persia and Afghanistan. Through India lies one Trans-Continental line; the other must pass to the north of it, being a continuation of the Orenburg-Tashkent and Trans-Caspian railways, which again, sooner or later, will be connected by a transverse line with Omsk, on the Trans-Siberian. The oil of Baku has since 1880 been an invaluable aid to rail and steamboat communication over a wide area, and in the future, as long as it lasts, it will feed one still wider. If the oil of Baku and the trade-routes of Batoum and Trebizond are to be, as the Entente evidently intends, open for the world's use, the maintenance of the independence of Armenia, Georgia, and the Azarbaijan Republic must be maintained.

It was at an early hour on the 29th June 1881 that we left the Summer Club of Baku and returned to our steamer. What with heat and flies, sleep would not be wooed, so at dawn we were up, and went for a walk to the naval dockyard. As we returned we got the north wind and its dust full in our faces, a presage of what we might expect when we rounded Cape Apsheron, which we did about 5 P.M.

It will be remembered by some that in June 1881 a very notable comet was visible. We saw it every night that we spent on the Caspian about 9 or 10 P.M. The two towns of importance on the west shore of the Caspian between Baku and the Volga mouths are Derbent and Petrofsk. The former was for wellnigh a century a bone of contention between Russia and Persia, and the great fort and walls, the siege and capture (twice) of which by the Russians in the eighteenth century are described in Malcolm's *History of Persia*, vol. ii. pp. 5 and 295, were well seen from the Derbent harbour when we stopped there. What still lurk in a nook of my memory are the magnificent black and white heart cherries which were brought on board at Derbent. Thence we passed on to Petrofsk, which a few years later became joined by a railway with the Tikhorietskaya junction of the lines from Rostof and Tsaritsin. Petrofsk then became a harbour of some importance on a line of communication with Krasnovodsk and the Trans-Caspian Provinces.

Our journey from Baku to Astrakhan, with the hours spent off Derbend and Petrofsk, lasted from mid-day on 29th June to 9 A.M. on 2nd July. The huge volume of mud-laden water brought down by the Volga tinges the Caspian Sea for many miles from the river's mouth. We found the Volga steamer waiting for us. We were at once transferred to it, got settled in our new cabin, breakfasted, and at mid-day set off to explore the town. We walked all round the obsolete old walls of the Kremlin, a distance of less than a mile, and then entered through a gateway under a tall belfry tower, from which later we took a bird's-eye view of the town. The Cathedral, which is inside the Kremlin, is externally unattractive, but the decorations of the interior reward a visit. In the evening we were admitted as temporary members of the Astrakhan Summer Club with the same courtesy which was extended to us at Baku, and enjoyed the privilege of listening to the music and watching the dancing. We got back to our steamer at 10 P.M., and

found the saloon thronged with a great assemblage of both sexes, eating and drinking. We were thankful when the second shrill discordant blast of the steam-whistle stampeded the throng, and we could settle down in comparative peace and comfort to smoke and read. Our thirty-hours' run to Tsaritsin was as pleasant and comfortable as we could desire. A railway now connects Tsaritsin with the Don, but would any one know how journeying between the Volga and the Don was done in the middle of the last century, Laurence Oliphant in *Russian Shores of the Black Sea* is the authority to consult.

When next I approached the shores of the Caspian, just four years had passed by. When the Afghan Boundary Commission went to Herat in September 1884 the Government of India gave me a year's leave to accompany that Commission as Special Correspondent of the *Pioneer*. It was in some respect the year of my life, which I owe to the fact that, when my eldest brother (now Col. E. C. Yate, M.P. for Melton) told me at Kandahar early in 1881 that he meant to go home on furlough across Persia, I decided to apply for ninety days' privilege leave and go with him. On my return in August 1881 I found at Hydrabad, in Sind, where my regiment, the 1st (127th) Baluch Light Infantry, was stationed, an Ispahani Persian, with whom, for two years, I spent three or four hours a day reading and talking Persian. I then went up for the High Proficiency Test in Persian, and, having passed that, started to read in Bombay for the Degree of Honour. For that purpose I was given six months' leave, only to find at the end of it that the competent examiners were all away, and I had to rejoin my regiment at Jacobabad, *re infecta*. That Gold Medal, which seemed within my reach, never became mine. I must regard that year (1884-5) spent with the Afghan Boundary Commission as its substitute, though with luck and a little less red tape I might have had both. When it was known that Britain and Russia had decided to demarcate once for all the Russo-Afghan frontier from the eastern border of Persia to the Oxus, the *Pioneer* looked around for a "special correspondent." Some kind friend of mine at Simla, mindful of my journey across Persia in 1881, mentioned me as a possible choice; and in due course I was chosen. The authorities at Poona, who had so grievously disappointed me about the Degree of Honour in Persian, promptly granted me a year's furlough. The account of my experiences during that year was published in 1886 by Messrs. Wm. Blackwood and Sons, concluding with a very incomplete narrative of my journey in the summer of 1885 from Herat to the Caspian port of Bandar-i-Gaz. I wrote at the time a number of articles for the *Daily Telegraph*, describing especially my three days' stay in the Persian national fortress of Kalát-i-Nadiri and my experiences in travelling along the Russo-Persian frontier. The distance from Kuchán to the Caspian, about 370 miles, I covered in eleven days, and that, considering that it meant an average of 33 miles a day for the mules and muleteers, was a good performance. At Bandar-i-Gaz the agent of the Mercury and Caucasus Steamship Company and his wife entertained me kindly and hospitably. The boat was behind time, so I spent the night of 30th July 1885 with them. From Bandar-i-Gaz we coasted up the

eastern shore of the Caspian, passing the Russian naval station of Ashurada, the roadstead of Chikishlar, whence started one, if not more, of the earlier Russian expeditions against the Turcomans, Mikhailovsk and Krasnovodsk. I will quote what I wrote at the time of these several places in *England and Russia Face to Face in Asia*, p. 438-9.

"We called in at Chikishlar, which is nothing but a shelterless road, and Krasnovodsk, a well-sheltered and commodious harbour, where steamers can be moored alongside the pier quite close to the shore, so deep is the water. But in the approaches to Mikhailovsk, on the other hand, so shallow is the water that no steamers of any draught can navigate them. The cargo has to be transferred to flats, and so

The Harbour of Krasnovodsk, which at the end of 1890 became, and still is, the terminus on the Caspian Sea of the Trans-Caspian Railway. Taken in 1890.

transported up the shallow channels that lead to the site of the railway terminus. This is a very serious drawback, and several plans for rectifying it have been proposed, one being the wholesale transfer of the railway terminus to Krasnovodsk, which, however, would be a very expensive undertaking, owing to engineering difficulties; and the other the deepening of the approaches to Mikhailovsk. But this latter proposal is hardly likely to be a success, because the approaches would again very soon be choked by the sand-drift from the desert. At any rate, incessant dredging would be obligatory. There is, however, a third project, and one that promises more satisfactory results than either of the two first named. When in the Caucasus in August (1885), I was informed that an eligible harbour of sufficient depth to admit almost any of the Caspian steamers had been discovered on the south shore of the Balkan Bay, *vis-*

*à-vis* to Krasnovodsk, and within twenty or thirty miles of Mikhailovsk. It is said that the railway terminus can easily be removed from Mikhailovsk to the site of this newly discovered harbour."

In September 1890, when I went to the Tashkent Exhibition, I made acquaintance with this newly discovered harbour and terminus. It was Uzun-ada, and may be seen in the maps that illustrate Mr. George Dobson's *Russia's Railway Advance into Central Asia*, or in Lord Curzon's *Russia in Central Asia*. Baku in 1885 and 1890 I found even less attractive than in 1881. Words cannot describe the squalor of the hotels in Baku. The one thing that was good was the cooking, and no one who can get a good wine of Kakhetie is to be pitied. For the rest, my pen in 1885 records it as "a barren, scorched, treeless amphitheatre of hills, a soil in which nothing can grow, streets thronged with a motley and unwashed crowd of Russians, Persians, Armenians, Georgians, etc., a wind that whirls dust and grit in eddies down every street, into every corner and into every eye, a pitiless heat and glare; such is Baku." Such was Baku in 1881, 1885, and 1890 as I saw it.

Baku during this war has witnessed scenes of which the history has not yet been written—scenes in which Turk, Tatar, Bolshevist, and Armenian have played their lurid parts, and which will, perhaps, defy history to reproduce them.

---

**Erratum.**—In the Obituary notice of the Hon. Lord Guthrie, which appeared on p. 185 of our last issue, the name of the author, Mr. Ralph Richardson, was inadvertently omitted at the end of the notice.

## GEOGRAPHICAL NOTES.

### Europe.

**Proposed Glasgow Number.**—Arrangements are in progress for publishing, as the January quarterly issue of the *Magazine*, a number devoted to Glasgow, illustrated by old maps and views showing the development of the city. A number of prominent Glasgow gentlemen are interesting themselves in the project, and the General Finance Committee of Glasgow Corporation has generously agreed to make a grant of £200 from the funds of the Scottish Exhibition of National History, Art, and Industry towards the cost of production, and their recommendation was duly approved by the Corporation. Among those who have promised articles or other forms of co-operation are Dr. W. G. Black; T. C. F. Brotchie, Esq.; J. A. Brown, Esq.; Prof. T. H. Bryce, M.A., M.D.; Prof. J. W. Gregory, D.Sc., F.R.S.; H. Lumsden, Esq.; Principal Sir Donald Macalister, K.C.B., M.A., M.D., D.C.L., LL.D., D.Sc.; T. R. Mackenzie, Esq., and others; and it is hoped to make the issue one worthy of the commercial capital of Scotland.

**A Study of Ben Nevis.**—We have received from the Scottish Mountaineering Club, 12 Castle Street, Edinburgh, a copy of the Section

of their *Guide* (Section E) relating to Ben Nevis, edited by Mr. H. MacRobert. In addition to the detailed account of the various climbs of the region, the pamphlet contains sections on the meteorology, topography, geology, flora and fauna of the *massif*, and is illustrated by some exceedingly fine photographs, mostly taken under winter conditions. We may note that some, but not all, of these photographs are dated, and would suggest that this practice should be invariably followed. Except to the relatively small number of persons who are familiar with the summits of the higher Scottish peaks during the colder season of the year, the wide snowfields, the huge overhanging cornices, the typical *Bergschrunds*, the snow-filled gullies shown in many of the photographs will, we think, be a surprise to the student of geography, who is not, as a rule, aware how arctic these hills appear during a considerable part of the year. The usefulness of the photographs to the geographer is thus greatly enhanced when the precise period is named. We cordially recommend the pamphlet to the attention of our readers, and note that it can be obtained by the general public at a price of 5s. Apart from the general descriptions, the detailed notes on the climbs give in many cases much information as to the nature of the snow cornices and other mountain phenomena, while there are some curious notes on fog crystals. In the meteorological section, it may be pointed out, the phenomenon of "inversion of temperature," so interesting on Ben Nevis, is inadequately treated.

**Spitsbergen Treaty.**—The Treaty regulating the Status of Spitsbergen and conferring the Sovereignty on Norway (to quote its full title) still awaits ratification. As previously announced in the *Magazine* (vol. xxxvi. p. 111), it was signed on February 16, 1920, by the United Kingdom. The signatures of the contracting parties were completed on April 9, 1920. Ratification is expected during the next few months, which will enable Norway to exercise jurisdiction next summer, subject to the provisions enacted for the safeguarding of non-Norwegian interests from any possible interference. In the meantime Spitsbergen remains a *terra nullius*. Mining, principally of coal, is making great strides, and the summer of 1920 was marked by much activity in the opening of new seams and the foundation of several new mining settlements. The north of Norway, Norwegian coasting steamers, and, to some extent, Swedish railways, are now turning to Spitsbergen for their chief coal supplies.

**The Eruption of Katla, Iceland.**—In *Petermann's Mitteilungen* for June last Prof. Karl Sapper discusses the eruptions of the volcano Katla during the winter of 1918-19. Before the tenth century this volcano had been dormant for a prolonged period, and the twelve or thirteen eruptions known to have occurred up to 1860 were all of an explosive character. The recent outburst of activity opened on October 12, 1918, when clouds of dust-laden vapour hung over the crater, so lit up at night that the streets of Reykjavik were quite light. Feeble earthquake shocks were felt, and volcanic ash fell over a wide radius.

No lava appeared, and though the fine dust produced various diseases in sheep and other animals, the fall was not heavy enough to damage the pastures seriously. More important, however, than the volcanic phenomena proper were the glacial streams. These owe their origin, not directly to the volcanic force, but to the streams of warm water which pour from the crater and melt the ice of the surrounding glaciers. The first stream made its appearance about an hour and a half after the onset of activity, and was followed by others. One of these streams spread out over an area of 40 to 60 square miles. The streams carried many fragments of ice, some large enough to be veritable icebergs, and wrought great destruction to stock and property, though no lives were lost. The individual streams appear, however, to have been short-lived. Later examination showed that two deep crevasses had appeared in the glacier, from which the glacial streams had emerged.

**The Sleswig Plebiscite Area.**—Prof. P. Langhans publishes in the June number of *Petermann's Mitteilungen* an article on this subject, which is illustrated by a useful sheet of coloured maps. In the text he protests against the boundary line chosen as the limit of the northern plebiscite zone. He states that the substitution, according to the German claim, of Tiedje's line would have given a result more in accordance with the voting. Tiedje's line would have considerably diminished the area of the northern zone, but according to Prof. Langhans the voting in the belt between this line and that adopted showed 6735 German votes as against 5658 Danish ones. The town of Tondern gave a clear German majority, and if the Tiedje line had been adopted would have been left to Germany. The author also protests against the regulation which deprived immigrants who had entered the country since 1900 of the vote. These "outlanders" are predominantly German in sympathy, a fact which seems natural enough, all things considered, but is regarded by the author as "an unmistakable proof of the attractive and assimilating force of the German south." If they had been allowed to vote he considers that the whole area, in times of peace, would have declared for Germany.

## Polar.

**The Dependencies of the Falkland Islands.**—The Report of the Interdepartmental Committee on Research and Development in the Dependencies of the Falkland Islands (*Cmd.* 657) contains a vast deal of important information on South Georgia, the South Orkneys and South Shetlands and adjoining seas. The report is particularly full on the whaling and sealing industries and the habits and distribution of whales and seals. We are glad to see that the Committee made full use of Dr. W. S. Bruce's wide knowledge of the regions in question, and print at length several valuable memoranda submitted by him. These include some of his hitherto unpublished researches on the early history of the sealing industry in the South Shetlands, and some copious notes on interviews with several of the leading Norwegian whaling captains in 1918. Among other reports in the volume are: The commercial uses

of the products of the whaling industry; the present position of the southern whaling industry, by Sir Sidney Harmer; and memoranda on the methods of the industry by Mr. T. E. Salvesen and Captain C. A. Larsen. The volume is well illustrated with maps and contains much useful statistical matter. We hope to return in a later issue of the *Magazine* to this important contribution to the geography of the Southern Ocean and subantarctic dependencies of the Empire. Meanwhile, it is of interest to note that the Committee recommend that two vessels, provided with competent scientific staff and full equipment, should be employed to carry out research in the habits, distribution, and migration of whales and seals, in hydrography, meteorology, and geology, and in zoology generally—with a view to the development of whaling and sealing and the possibility of mining, commercial fisheries, reindeer breeding, etc. Three-masted topsail schooners with auxiliary steam power are recommended, the one of some 700 tons and the other of some 215 tons. It is further suggested that the smaller vessel should be fully protected for work among heavy ice. It is estimated (1919) that the maintenance cost of such an expedition, exclusive of the initial cost of the vessels, would be £30,000 per annum in addition to the cost of the scientific staff and the expense of publishing the results. The Committee, impressed by the value of the reports of the Scottish National Antarctic Expedition, recommend that additional financial assistance should be afforded to enable the publication of the reports to be completed, in order that they may be available in the course of the proposed investigations.

**New Expedition to Greenland.**—We have received from Mr. M. P. Porsild, Director of the Danish Arctic Station in Greenland, an account of the plans of a new Danish Expedition to North Greenland, written by Mr. Lauge Koch, the leader of the Expedition. The scheme is intended to celebrate the bicentenary of Hans Egede's departure from Copenhagen for Greenland in 1721, a date which marks the beginning of the systematic colonisation of the territory, and Mr. Koch's note, after referring to the part played by Danish scientists in the exploration of its coast-lines, goes on to say:—

"The coast of Peary Land, the remotest, most inaccessible part of Greenland, we have reached from both sides. The 'Danmark' Expedition reached as far as Peary's Cairn on Cape Bridgeman, and the Second Thule Expedition, in which I took part myself, reached the De Long Fiord. But there still remains a stretch of coast which no Dane has ever seen, and the interior of this country, almost as large as Denmark, is still absolutely unknown.

"On the Second Thule Expedition, conducted by Knud Rasmussen, it fell to me not only to map out great ice-free territories, which had hitherto been unknown, but also to demonstrate that these new territories geologically are among the most interesting in Greenland, and that the so-called Caledonian Fold, which had hitherto been known to exist only in Northern Europe, stretched across to the other side of the Atlantic.

"Irrefutably proved as these results are by the collections which we succeeded in bringing home in spite of the greatest difficulties, I realised already while I was working in the field that great problems still remained to be solved here. The plan of another expedition was conceived, the aim of which was to be exclusively geological and geographical research.

"In Robertson Bay in Inglefield Gulf a headquarters with a wintering station is to be established. From here I propose to start on the following journeys:—

"(1) A large provision cache for future journeys is to be taken across the Inland Ice from Inglefield Gulf to Warming's Land.[1] The transport will take place in the late summer, when the temperature is comparatively high and the surface snow is melted down or compressed. For this reason it is to be undertaken by *Cleveland Tractors*, which will be able to work across the ice-free marginal zone at Inglefield Gulf.

"(2) The next year the same journey will be repeated in dog-sledges to the cache, and from there to the interior of Peary Land and to the north of Adam Bierings Land, an advanced base being established in Valmuedalen. From here various short journeys are to be undertaken —to Independence Fiord, where Mylius Erichsen's account of his journey is to be fetched, and northwards to Böggild's Fiord. On the way back the part of Wulff's Land and Warming's Land which I did not succeed in mapping out on the Second Thule Expedition will be surveyed. The main cache will be passed on the way back in August.

"(3) The following spring I will proceed from headquarters along the coast, through Robeson Channel and further to the north of Peary's Land into Independence Fiord. From here I go on to my main cache, from which I start on the homeward journey.

"My Danish companion on these travels will be Mr. C. F. Slott, an engineer, who during many years and in many countries has almost exclusively devoted himself to the study of *tractors* and their practical working. On the sledge-journeys I will be accompanied by Polar Eskimos. The cost of the expedition is estimated at 110,000 Danish kroner, part of which has been guaranteed by the Danish State. The remainder was raised by a committee consisting of the following gentlemen:—

"Messrs. C. F. Wandel, former Rear-Admiral of the Royal Danish Navy, Chairman; A. Erlandsen, shipowner, Treasurer; J. Daugaard-Jensen, Director of the Administration of the Colonies in Greenland; V. Clückstadt, of the Merchants' Guild, Consul General for Italy; Eugen Warming, former Professor of the University of Copenhagen.

"Besides, the State has placed a ship at our disposal in order to take the expedition and its stores to Inglefield Gulf. This ship left Copenhagen on July 15, 1920."

[1] South of Sherard Osborne Fiord. The writer's map of the regions surveyed by the Thule Expedition has been printed and will soon be published.

GENERAL.

**The Cardiff Meeting of the British Association.**—We publish on p. 217 of this issue the Presidential Address to Section E (Geography) at this meeting, but our usual account of the proceedings of the Section is unavoidably held over on account of lack of space. The meeting was a comparatively small one, 1378 members being present, but was interesting from several points of view. An outstanding feature was the resolution, brought forward by Section D (Zoology), but supported by E, as well as by the Chemical, Physical and Geological sections, pointing out the importance of urging upon the Government and the nation the need for initiating a national expedition for the exploration of the ocean, or in other words a new *Challenger* Expedition. The General Committee of the Association subsequently recommended the Council to appoint an expert committee to prepare a programme of work, and to consider the *personnel* and apparatus required.

Next year's meeting is to be held in Edinburgh, from September 7th to 14th, the meeting as in pre-war days thus occupying a full week, with an intervening Sunday. Sir Edward Thorpe is to be president. In 1922 the meeting-place is to be Hull, while invitations have been received to meet in Canada in 1924.

## NEW BOOKS.

### EUROPE.

*Seaward Sussex: The South Downs from End to End.* By ERIC HOLMES. London: Robert Scott. *Price* 7*s.*

The charm of the South Downs has inspired many writers since the days of Gilbert White of Selborne, whose description of "that majestic chain of mountains" is apt nowadays to raise a smile. And here is another book in praise, not only of that long range of smooth-swelling grassy eminences, with their deep combes and sequestered valleys, that extends for sixty miles from the Hampshire border to the sea at Beachy Head; but also of the many interesting towns and old-world villages that lie between the Downs and the Sussex sea-board.

The modern watering-places along that coast—Eastbourne, Brighton, Worthing, and the like—are dismissed by Mr. Holmes in a few pages, but he has much to tell us of Lewes, one of the oldest towns in England, and its long history; of Arundel, "a city set on a hill," where the towering church of St. Philip Neri and the great castle, the ancestral seat of the Howards, looking down over the beautiful valley of the Arun, "appear more in keeping with northern France than southern England"; and of Chichester, with its cathedral, unique detached bell tower, market cross, and other interesting features.

The author concludes with a description of Selsey Bill, "one of the most primitive corners of southern England . . . in which many old customs linger, and where the Saxon dialect may be heard in all its purity." Selsey, "Seal-Island," has suffered more from marine erosion than any other part of the coast, except perhaps certain parts of Norfolk, and in Camden's day the foundations of Selsey Cathedral, the seat of the Sussex see before the Conquest, were visible at low water.

This work, in addition to its topographical value, will be found of practical use to the wayfarer in Sussex. The last two chapters contain a detailed itinerary for a (perhaps somewhat hurried) traverse of the Downs from end to end, and also useful notes on the various routes from London to the coast. Miss Mary Vigers' many graceful pen-and-ink drawings give point to the author's descriptions and add much to the interest of the volume.

*By-ways in Berkshire and the Cotswolds.* By P. H. Ditchfield, M.A., F.S.A. London: Robert Scott. *Price* 8*s.* 6*d. net.*

This new volume of the "By-ways" Series tells us of the pleasant land that lies along the south side of the Thames valley between Windsor Forest and the Cotswold Hills. It is a country rich in historical and literary associations, and these—as might be expected from the pen of so distinguished an antiquary as Mr. Ditchfield—are amply dealt with in the pages before us. We read of Binfield, with its early memories of Pope; of Wokingham and Miss Mitford's country—"Our Village" is the hamlet of Three-Mile-Cross, near Reading; Eversley, the home of Charles Kingsley and the subject of one of the most charming of his descriptive articles in *Prose Idylls*; and of Wantage, the Vale of White Horse, and Uffington, the birthplace of Tom Hughes, and immortalised in the early chapters of *Tom Brown*. The author discredits the general belief that the "White Horse" was carved as a memorial of the great battle of Ashdown, fought by Alfred against the Danes in 871; he points out that the horse, of which he gives a figure, is of an archaic form, and similar in outline to the animal represented on early British coins copied from those of Philip II. of Macedon, and considers that it may be attributed to our Celtic forefathers. He also believes that the "Scouring," of which Hughes has given so graphic a description in his well-known book, may be a relic of ancient Celtic religious ceremonies.

Berkshire and the upper Thames valley are noted for their fine churches and historic mansions, and these receive adequate and scholarly treatment at the hands of Mr. Ditchfield. Altogether a most interesting book, and one likely to induce the reader to include Berkshire and the Cotswolds in his next tour in the south of England.

*L'Esthonie: Les Esthoniens et la Question Esthonienne.* Par M. Martna, Membre de la Délégation Esthonienne. Préface de C. R. Pusta. Paris: Armand Colin. 1920. *Prix* 5 *fr.*

This is a very useful little book, which we cordially recommend to the notice of all who are interested in Russian problems, more especially those connected with the border states. A similar work on Latvia would form a worthy addition to the series of monographs on problems connected with the peace which its publishers are now issuing.

The book opens with a short account of the area inhabited by the Esths, which includes not only the former province of Esthonia, but the northern half of Livonia, and small adjacent parts of the provinces of Petrograd and Pskov. Within this region the author estimates that about 1,700,000 Esths live, while the German Balts, who form the landowning and, until recently, the ruling classes, number only about 26,000. The remainder of the volume is devoted mainly to a discussion of the agrarian problem, and the connected question of the relation between the Esth peasants and the Balt barons, followed by an account of the events which led up to the founding of the independent republic of Esthonia.

This historical section is of great interest, for it affords an interpretation of much of the confused fighting which went on in the region, both before and after the Armistice. Both M. Martna and M. Pusta, it may be noted, are emphatic in stating that, alike in aims and in methods, Soviet Russia is the heir of Tsarist Russia, and, whatever its theoretical doctrines, is as imperialistic as ever the latter was in dealing with non-Russian peoples, and considerably more cruel.

*Belgium: The Making of a Nation.* By H. Vander Linden, Professor of History in the University of Liége. Oxford: at the Clarendon Press, 1920. *Price 7s. 6d. net.*

In his preface the author states that this work was written while he was in exile, during the war, at Oxford, where he had the bibliographical resources of its great University. He tells us that "the very name of Belgium is still a problem," but that "the predominant element in the Belgium population" was originally Celtic, and that, about the third century B.C., a "tall and fair-haired race absorbed or expelled the earlier peoples, those Celts, Ligurians, and others who doubtless erected the *dolmens*." The first conflict between Julius Caesar and the Belgic tribes took place on the Aisne (57 B.C.). Then followed the Roman conquest and the immigration of the Franks who, with the Alamanni, crossed the Rhine and compelled the Roman legions to fall back towards the Meuse. In 751 A.D. Pepin was elected King of the Franks at Soissons, and after him came Charlemagne and the Carolingian epoch. The twelfth century holds a position of the first importance in the history of Belgium, for it witnessed the rise of an essential factor, namely, the towns. Ghent, Bruges, and Ypres were erected in Flanders, while Louvain and Brussels arose in Brabant. Liége and Maastrict became important markets. Marvellous prosperity distinguished the Belgian towns in the thirteenth and fourteenth centuries. Hence arose the splendid halls of Bruges and Ypres. Ghent and Ypres were, with Douai and Lille, the chief centres of the great cloth industry, but this occasioned conflicts between employers and employees, principally on the question of wages. A democratic revolution broke out in 1280 in order to overthrow the oligarchy, which held all civic offices. In Bruges in 1302, the artisans arose and butchered the French soldiers who were sent to subdue the rebels. At Courtrai a bloody battle took place between the French army, composed of nobles, and the weavers and peasants of Flanders, in which the Flemish democrats completely routed the aristocrats. This battle is one of those which have had most influence on the destiny of Belgium.

The most brilliant period in the history of Belgium was from the beginning of the fifteenth century to the middle of the sixteenth century. The progress of luxury was the primary cause of an artistic revival. Architects, sculptors, painters, and goldsmiths vied with each other in producing those masterpieces which we still admire. The revival of learning also took place. Erasmus was trained at the University of Louvain. In 1518 the first symptoms of the Reformation appeared at Antwerp, and Lutheran books spread rapidly there. Two Augustinians of Antwerp, who had turned Lutherans, were burnt at the stake in 1523 and were the proto-martyrs of the Reformation. About 1543 Calvinism entered the Low Countries, and its radicalism easily enabled it to absorb the other Protestant confessions.

Then came the famous revolt against Spanish rule, which lasted from 1555-98. Philip II. ordered severe measures to be taken against the Calvinists, but the magistrates did not dare to face so strong a body. The Duke of Alva, however, arrived in 1567, at the head of a Spanish army, and wholesale executions began.

Philip II. left Belgium in a deplorable condition, but the Roman Catholic Renaissance, produced mainly by the Jesuits, filled churches with pictures and statues and produced some great artists, such as P. P. Rubens, Jordaens, Van Dyck, and Teniers. The Austrian autocracy lasted from 1713-89, and the French conquest from 1792-4. Belgium shared the destinies of France till 1814, but the battle of Waterloo in 1815 secured the deliverance of Belgium, which was reunited to Holland till 1830, when a revolution occurred, and the present kingdom of Belgium was established. Material progress and intellectual and artistic development have distinguished the monarchical period. The author closes his valuable work with the memorable sitting of the Belgian Parliament on 4th August 1914, when, in reply to the German ultimatum, King Albert nobly declared that "one sole duty imposes itself on our wills, obstinate resistance."

*Bolshevist Russia.* By Etienne Antonelli. London: Stanley Paul and Co., 1920. *Price* 12*s.* 6*d. net.*

Much has been written on the subject of Bolshevism since 1917, but we do not know enough yet about the greatest movement of our times. *Bolshevist Russia*, by Professor Antonelli, is rightly termed a philosophical survey; and we should be deceiving ourselves if we looked for anything but profound philosophy in his book. Bolshevism, be it borne in mind, is essentially a mystical conception of the social and political forces of Russia.

In the beginning Bolshevism, unlike the revolution, met with a unanimous disapprobation in Russia, and "in spite of this coalition against them of all the moral forces of the nation, the Bolsheviks seized the power." How can we explain these contradictions? We find an answer to it in the first history of the Russian Revolution. "The spirit of revolt, the natural fruit of the tyrannical institution of serfdom, always existed amongst the peasantry. The Bolshevists were from the very start able to satisfy the mystical and emotional desire of despotism which slumbers in every Slav soul. Kerensky wanted to curb his Slav instinct, and aimed at class reconciliation. He failed. Lenin succeeded because he echoed the popular cry 'Humiliate the bourgeoisie'; class warfare was the chief item in his programme."

Professor Antonelli traces the gradual development of Bolshevism, which, according to him, existed long before the Bolshevist creed received the official hall-mark. After the Revolution, the soldiers had made peace with the Germans a long time prior to the actual ratification of the Brest-Litovsk treaty. The peasants had driven away the landlords, and in the factories the workmen had created "Factory Committees" which claimed to act as managers. All that the Bolshevists did was that "they merely regulated the previous disorder by giving it a legal basis."

The author has dealt ably with the agrarian and commercial problems, which he admits will dominate the coming social and economic development of Russia. He points out, a fact which is only too true, that the Bolshevists have administered a *coup de grace* to the great industries of the country. The enactment of laws for the State monopoly of banking, the abolition of the "class" system, and the establishment of civil marriages are given their due significance in the work.

In conclusion, it is pointed out that if Lenin's doctrines are not crushed, the movement "will prepare for humanity the spectacle of a singular democracy, . . . a democracy which will not be made up of gradual conquests, . . . but which will build itself up from the very stuff of the people." It will differ from the present democracies in not coming from the plutocratic bourgeoisie. The mythical

aspiration of the people will evolve it. But the author relieves us much when he says, "For my part, I do not believe that Bolshevism can survive. You cannot build society against culture and intelligence." The book is undoubtedly the best of its kind. It is an unbiased and scholarly work.

*Folkestone and Dover.* Described by WALTER JERROLD; Painted by E. W. HASLEHURST. *Hastings and Neighbourhood.* Described by WALTER HIGGINS; Painted by E. W. HASLEHURST. London: Blackie and Son, 1920. *Price 3s. each.*

These specimens of Blackie's "Beautiful" Series fully deserve the adjective. Within their 64 pages enthusiastic accounts are given of the local conditions, history, antiquities, traditions, and attractions of important and interesting south coast towns, and the authors' opinions are frequently supplemented by testimony from such distinguished visitors as Chaucer, Pepys, Lamb, etc. The highest praise must be given to the charming manner in which the books are illustrated.

*Holiday Rambles in North Wales.* By ARTHUR L. BAGLEY. With Nineteen Illustrations. 8vo. Pp. 203. London: Skeffington and Son, Ltd., 1920. *Price 6s. net.*

The author is an indefatigable and enthusiastic scrambler among rocks, and in the above volume gives an account of the numerous excursions he has made in the Snowdon area, whose crags and mists he knows so well. Any one wanting an admirable guide to the hills of North Wales will find it in those pages, and even although he be a "common or garden tourist," the bane of Mr. Bagley's tramping life, and partial to "green-grassy" hills, he will probably be induced to follow the author's itinerary.

Mr. Bagley, who has an eye for striking scenery and a certain amount of descriptive power, might, to be consistent with his avowed aversion to women (which is perhaps only on the surface), have chosen a less effeminate epithet than "sweetly pretty" for Aber. He is humorous at the expense of Bingley's eighteenth century English, but it would be refreshing to hear Bingley's remarks on this sentence (p. 96): "Deeply set between surrounding hills, if approached from the latter, as I had done a few days previously, you lose the effect altogether." And yet, leaving out of account Mr. Bagley's predilection for words like "beastly," "scansorial," and his too frequent use of slipshod English, we can commend the book's appeal to those who like to spend their spare time in the exhilarating and healthful exercise of climbing.

*Geography of France.* By RAOUL BLANCHARD, Professor of Geography, and MILLICENT TODD, Lecturer in Geography, University of Grenoble. Chicago and New York: Rand M'Nally and Co., 1919.

"This book, a brief summary of the geography of France, is intended to show the methods of Regional Geography, using, by way of illustration, the country where not only detailed studies of many regions have been made, but where the subject itself has been most extensively developed. There is no French edition. The book was written, after the armistice, for the American Expeditionary Force, and is for the first time appearing in the United States."

After describing the structure and relief of France and its climate and vegetation, the authors discuss its "Natural Regions," viz. the Mediterranean region, the French Alps, the Jura, and the Saône-Rhône depression, the uplands, termed

the Massif Central and the Massif Armoricain, also the Pyrenees and Basin of Aquitaine, the Paris Basin, the Vosges and Alsace-Lorraine. Then follow chapters on "Economic Geography," comprising coal and White coal, the latter of which is now as much wanted in Britain as in France and is thus referred to :—"As if to make up, in part, for an insufficient supply of coal, France fortunately possesses in her mountain-streams (of the Vosges, Jura, Massif Central, Pyrenees, and the French Alps) reserves of power which she is beginning to make use of on a large scale. The falling water is confined in turbines and its force is thus transformed into an electric current which can be used either on the spot or, by transmission, at a distance. . . . As far as the development of white coal is concerned, France ranks high. In fact, thanks to the exploitation of Alpine streams, she is second, in Europe, only to Norway whose natural advantages are much superior. (The water-power of the Vosges has given new life to the ancient textile industries of Mulhouse.) The rapid spread of this youthful industry (even in the midst of war) is, as it were, the symbol of the surprising elasticity of France, who, as her enemies wished to have the world believe, was degenerating and exhausted."

Metals and metallurgy, the textile industry, and the industrial regions are then discussed, the book closing with chapters on wheat, cattle, the vine, transportation routes, and the French Colonial Empire. The volume is interspersed with most useful and interesting maps, and will prove of the greatest value to visitors to France and to students of its geography.

*The Day of the Crescent: Glimpses of Old Turkey.* By G. E. Hubbard, lately Vice-Consul for the Vilayet of Mosul, author of *From the Gulf to Ararat.* Cambridge University Press, 1920. *Price* 15*s. net.*

Turkish life to-day is very much as it was four hundred years ago. Mr. Hubbard has been delving in the archives of the Foreign Office, and has discovered much interesting matter about early Turkish history in Europe. Selections of this he lays before us in this pleasant volume. The period dealt with is from the middle of the sixteenth to about the end of the seventeenth century. Travellers of various nationalities visited Constantinople during this time, some as ambassadors, others for pleasure or curiosity, and it is useful to have this abstract of their opinions, for the most part given in their own words. The book is illustrated chiefly from contemporary sources with excellent reproductions of maps, plans, and wood-cuts. There is a short but sufficient glossary, but only extended chapter headings in lieu of index.

## ASIA.

*The Harvest of Japan: A Book of Travel, with some Account of the Trees, Gardens, Agriculture, Peasantry, and Rural Requirements of Japan.* By C. Bogue Luffmann. London and Edinburgh : T. C. and E. C. Jack, Ltd., 1920. *Price* 12*s.* 6*d. net.*

Regarded in the light of its secondary title, this book is worthy of all praise. An enthusiastic botanist and well informed in the agricultural customs of the world, the author has much to tell us about Japanese tree-growing and paddy fields. Like all visitors to Japan, he is enamoured of the beauty of the landscape gardening peculiar to that country ; and probably no writer has given a more fascinating account of it. The artistic quality of the Japanese gardener is explained by the fact that the Japanese lives nearer nature and understands nature's moods better than the European does. He is more primitive, less spoiled by

civilisation. On the other hand, the primitiveness of the agricultural methods as practised in Japan is condemned by Mr. Luffmann. He calls upon our Oriental allies to develop their country by introducing animal instead of human labour, and by invoking mechanical and electrical power to utilise to the full the native resources of the land. This, he maintains, would be of far greater value to Japan than her present desire for colonies and for competition in the world's markets. If all one hears is true about the nature of Japanese goods now filling the markets of the East, the people of the Rising Sun are hasting to be rich at the expense of sound workmanship. On this particular aspect of the national life Mr. Luffmann touches but lightly, but there is no doubt what his feelings and opinions are.

Outside questions of arboriculture and agriculture, *The Harvest of Japan* is not beyond criticism. Some of the epigrammatic statements will hardly pass muster. For example, we are told that "the European wants to own things, the Japanese wants to know things"—yet there is nothing worth knowing in philosophy, in religion, in science, which has come to us from Japan. We have learnt certain aspects of art from the Far East; but in literature and history Japan is far behind Europe. Certain Japanese guilds know how to grow dwarf plum-trees, but in what other departments of useful knowledge do they excel? Speaking of Japanese life, our author says: "Here is a life complete to its people, in few or in no ways complete to Europeans." The sentence is somewhat cryptic; but if it is a life complete to its people, how do we explain the Restoration, the Civil War, the Chinese and Russian Wars, and the spread of Japanese colonists all through the borders and islands of the Pacific?

In the preface we read: "Humour is not a strong point of the Japanese"—this from a traveller who, absolutely ignorant of the language, spent a few months of necessary silence studying the ways of the peasants! Again, take the statement: "The Japanese are the French of the Orient." What does it mean? The succeeding sentence runs, "They are more capable than they seem, but there is a difference between capability and wisdom." Japan for three centuries shut herself up oyster-like from the world; France always was among the most influential of European nations. If all tales be true, the leaders of Japan are now striving to be the dominating influence in the Orient—rather suggesting the German ambition than the French.

In any case, whatever of truth there may be in the description of the Japanese immediately following the sentences quoted, it is by no means complimentary to our friends across the Channel.

A very curious statement is the following: "The Japanese claim they are derived from the Ainu, the aborigines of all Japan, overwhelmed by incursions of races from the north and from the Philippines." We never heard of the Japanese ever making such a claim, nor is it at all likely that the proud Samurai would claim descent from a race that was "overwhelmed." As a matter of fact, the Japanese despises the Ainu, who is the survival of an altogether inferior civilisation. The languages are quite different. The Ainu is hairy, the Japanese is not. Their features and whole physique are ethnographically distinct. Their traditions and funeral customs have nothing in common.

In much of what is said about the Japanese character we are in broad agreement; but the author's tendency to epigram leads to statements which, if not wholly untrue, cannot be accepted without qualification. The book is indeed no safe guide to one wishing to know what the Japanese are in their own country. The author's own statement that the "only mortals whom he met at close quarters" were the efficient and kindly waiting-maids at the inns sufficiently explains the reason.

The book is nevertheless valuable for the information it contains regarding the Japanese treatment of trees and shrubs. In this respect it fills a place in the ever-growing literature concerning a particularly interesting people. Also there is much sound sense in the advice given to the Japanese to develop in a scientific manner the natural resources of their country. We cannot do better than finish with a few quotations :—

"Old and New Japan are in such sharp conflict as to reveal a positive disloyalty on the part of the Moderns. Within half a century she has passed from one of the least to one of the most mercenary of nations. Japan is industrious: that is well; but one-tenth of the energy would secure more if given a new and more rational direction. She is wasting her substance abroad, instead of estimating herself and formulating a sound domestic policy. To this hour nothing has been done to alter her land interests or improve the lot of her fifty million peasants. . . .

"By nature Japan is intended for agricultural pursuits: to have by far the larger part of her population bred out of and kept up among her hills. She is to be new made out of eating meat, and clothed with garments of sheep's wool; she is made to share wood fires and cooked food, and, now and then, the merriment and abandon bred of a little wine. So, as I have said elsewhere, Japan is not yet come to full stature. Japan may manufacture, and the world may buy —and Japan sell herself to the devil thereby. If she would be strong within herself in the eyes of the world, she must possess and dwell among the hills."

Nevertheless had Japan not chosen the line she chose, she would never have been accepted by the great nations of the world at her present valuation.

C. G. K.

*India at the Death of Akbar: An Economic Study.* By W. H. Moreland, C.S.I., C.I.E. London: Macmillan and Co., 1920. *Price* 12*s. net.*

Critics of British rule in India are fond of saying that we found India a rich country and have made it a poor one. Mr. Moreland does not set out directly to challenge this statement, but it may be confidently asserted that he completely disposes of it. He examines all the evidence that he has been able to get as to the economic condition of India at the close of what is recognised as the most enlightened period of pre-British rule about which such evidence is obtainable, the early part of the seventeenth century, when Akbar was ending his long and prosperous reign and the East India Company was in its infancy. Akbar died in 1605 (surviving Queen Elizabeth by two years and a half); the Company was founded on the last day of the sixteenth century. The last chapter of Mr. Moreland's volume, entitled "The Wealth of India," is devoted to the very question we have indicated at the outset. After giving different criteria for estimating the wealth of nations, pointing out how Europeans generally of the time of Akbar would have taken as evidence of wealth the great Indian stock of what they knew as costly commodities, while statesmen and financiers would have found evidence to satisfy them in the persistent influx of the precious metals, he adopts what all will now consider the only sound criterion of wealth, "the income of commodities, or more precisely the relation of that income to the members of the population" (p. 286). And that being the criterion, the reply to the question agitated has already been given by the author in the conclusion of his previous chapter on "The Standard of Life":—"The great bulk of the population lived on the same economic plane as now: we cannot be sure whether they had a little more or a little less to eat, but they probably had fewer clothes, and they were certainly

worse off in regard to household utensils and to some of the minor conveniences and gratifications of life, while they enjoyed practically nothing in the way of communal services and advantages. That is the picture itself: in the background is the shadow of famine, a word which has changed its meaning within the last century. In Akbar's time, and long afterwards, it meant complete if temporary economic chaos, marked by features which, repulsive as they are, must not be left out—destruction of homes, sale of children into slavery, hopeless wandering in search of food, and finally starvation, with cannibalism as the only possible alternative. It is against this background that the splendours of Agra or Vijayanagar must be viewed" (pp. 279-80).

The evidence on the strength of which the author arrives at these conclusions is given in a series of chapters in which, after an account of the country and its people and the system of administration followed by Akbar, every mode of economic production at that time is examined and compared with the present day, and one cannot fail to be interested in observing the author's keen scent for evidence of all kinds and the judgment with which, on the whole, it is handled. But while Mr. Moreland furnishes pretty conclusive evidence of the fact that the great mass of the people of India are in some important respects better off now than they were in Akbar's time, no reader ought to go away with the idea that he thinks their present conditions satisfactory. "The standard of well-being," he declares, ". . . is still so deplorably low that nothing but a large increase in the national dividend will suffice; vary the distribution as we may, there is not at present enough to go round, and if this comparison of two widely different periods has any lesson for modern statesmen and administrators, it is the paramount need for concentration of effort to secure an adequate increase of production" (pp. 298-9). Since the political changes of the eighteenth century, he holds, "the main interest of Indian economic history lies in the gradual transition from the régime of exploitation, through indifference, to conscious effort for improvement"; but "the slow and halting progress which has been achieved in recent years proves at once the force of the old evil tradition and the need for conscious and organised effort directed towards its complete and final eradication" (p. 300).

There are two minor points in the book on which some comment may not be out of place. Making a comparison between the volume of Indian commerce in Akbar's time and at the present day, he comes to the conclusion that in that time there has been an increase of "at least two hundredfold" (p. 237). This conclusion there is not the slightest reason to question. Indeed, on the strength of the data furnished, it is probable that a larger multiple might have been safely used. Mr. Moreland estimates the capacity of the total amount of shipping required for the foreign trade of India as probably less than "60,000 tuns of the period." This "tun," equal to the space required for one tun of wine, he takes (p. 310) at 60 cubic feet, and this estimate may be accepted. But he goes on to say that the 60,000 tuns may be taken as roughly equivalent to "24,000 to 36,000 *net* tons of the present day" (p. 237). Now, to begin with, the expression "net tons" is one to which no meaning can be given. We speak of "net register tonnage," but the register ton is the same unit, namely 100 cubic feet, whether the tonnage estimated is gross or net, the net tonnage being that which is arrived at after making due allowance for the accommodation required for machinery, fuel, and crew. But in estimating the tonnage or tunnage of vessels in Akbar's time, is there any reason to believe that a similar allowance was made for the space required by the large crews of those days, necessary not merely to work, but on occasion to fight, the ship, as well as to meet the frightful mortality arising from scurvy and other diseases? The largest vessel of the first voyage of the East India Company was

one of 600 tons burden and carried a crew of 200 men. If no allowance was made for the accommodation of a crew so large—and we must remember that it is the practice of Lloyds, at the present day, to estimate the capacity of sailing vessels according to their gross tonnage—then a very considerable deduction must be made from the "tunnage" to arrive at the cargo-carrying capacity, and the estimated "60,000 tuns" above referred to would probably be equal to even less than a net register tonnage of 24,000 tons.

The other point is as to the time of arrival of the Portuguese ships in India. Mr. Moreland points out (p. 229), on the authority of Pyrard de Laval (*Voyage*, as published by the Hakluyt Society, 1888, vol. ii. Part i. pp. 198-9), that the ships after reaching Natal went inside or outside of Madagascar according as they were early or late in rounding South Africa, and he intimates that the vessels thus kept late reached India in September or October, and they had to start back almost as soon as they could be loaded in order to pass the Cape before the next monsoon should set in. Now no such statement as this last is made by Pyrard. He states (p. 198) that the vessels arrive usually in September or October, therein agreeing with other authorities (*see* the Narrative of Ralph Fitch, p. 61, in Horton Ryley's edition, 1899, and the account given by Ferdinand i., Grand Duke of Tuscany, quoted by A. de Gubernatis in *Viaggiatori italiani nelle Indie Orientali*, Florence, 1867, pp. 149-50). The main use of Goa to the Portuguese was to offer a fine shelter to lie up in while waiting to take advantage for the voyage home of the winter monsoon about the end of the year or the beginning of the following year.

The author gives detailed references to authorities at the end of each chapter, and a list of authorities near the end of the book, but this list is not enough to enable us to trace all the authorities cited in the text, or sometimes to tell the date of the authority. Thus on page 112 a statement is made on the authority of one Jauhar, about whom we can only guess that he belonged to the time of Akbar. Neither from the present volume nor from any other source has the present reviewer been able to learn anything about him. Then Terry's *Voyage to East India* is several times quoted, but the only date given with regard to this voyage is that of the edition of the volume cited, 1777.

*From Persian Uplands.* By F. Hale. London: Constable and Co., 1920. *Price* 10*s.* 6*d. net.*

This is no mere collection of letters written by Mr. F. Hale to his friends at home. The book is not only a living travel narrative, but also contains material essential to the understanding of the inner life of Persia, for owing to his journey to Birjand, Askabad, Baku, Resht, Teheran, and Hamadan, the author saw many interesting scenes, and was able to study the people under many aspects. Speaking of the lower classes in Persia, he informs us that opium-smoking is the curse of the country, and suggests that it can only be remedied by strong and immediate measures.

Mr. Hale's interests are wide. He has studied the literature of Persia, and Malek, Arslan, Shahnameh, and Iskander Nameh were not only read, but formed his constant companions.

The medical system of Persia is touched upon, and we read of a poor man who was obliged to use crutches, as he had been bitten by a snake, and native surgical science could not relieve his suffering. Folklore and archæology have also not escaped the notice of the author. He tells us of a colossal figure of a lion chiselled in sandstone which guards an eminence near Hamadan. "The face is worn almost smooth, but the lion's present claim to distinction lies thereon, for while the rest

of its body and the surrounding earth may be absolutely dry, its face is always wet and oleaginous. The affection is no mere chronic catarrh. . . . The lion's face is said to be rubbed with oil by women of the neighbourhood whose married life has not borne fruit."

The great feature of the book is that it is free from the guide-book flavour. The letters are written in excellent descriptive style, and, what is more creditable, with a good deal of sympathy for the subjects treated. The author has made an effort to see the good side of everything.

*With our Army in Palestine.* By Anthony Bluett. London: Andrew Melrose, Ltd., 1919. *Price 7s. 6d. net.*

This book is certainly one of the best yet written for giving an accurate and vivid impression of the everyday life of the troops of the Egyptian Expeditionary Force in Egypt, Sinai, and Palestine during the war. The general public at home has remained, and still remains, for the most part in ignorance of the special hardships and difficulties which had to be put up with by those engaged in this particular "side-show"; and there is no doubt that the author has done good work in helping to dissipate the idea that the E.E.F. was employed mainly amidst the fleshpots of Cairo and Alexandria. Those in particular who served with the 52nd Division have much reason to be grateful to him for the many occasions on which he does justice to their Division's work. Commencing in the west of Egypt at Mersa Matruh with the campaign against the Senussi, the reader is taken next to duty on the outposts guarding the Canal, and then from Kantara follows the desert railway and the wire road eastwards to take part in the unsuccessful first and second battles of Gaza, later in the capture of Beersheba and the advance on Jerusalem. The following chapters chronicle fighting in the Jordan Valley and the "crowning mercy" by which Liman von Sanders' army was overwhelmed in 1918. The atmosphere of the campaign is very pleasantly and accurately reproduced.

*My Campaign in Mesopotamia.* By Major-General Sir Charles Townshend. London: Thornton Butterworth, 1920. *Price 28s. net.*

This volume, which is illustrated by fifteen maps and plans, is primarily of interest to the historian and student of strategy. It is divided into five parts, which deal successively with the stages of General Townshend's campaign. Thus Part I. gives an account of the occupation of Basra, the battle of Kurna, and the occupation of Amarah. The battle of Kut is dealt with in Part II., while Part III. is devoted to the advance to Ctesiphon, the battle there, and the withdrawal to Kut. The tragic tale of the siege of the latter town is dealt with in Part IV., and in the final part General Townshend describes his experiences in Constantinople as a prisoner of the Turk. The description of the journey through Asia Minor, carried out under very different conditions from those to which the rank and file had to submit, throws some interesting sidelights on the area during the war period, while the account of the Armistice negotiations with Turkey, in which the author played a part, is particularly valuable. It shows that General Townshend held very different views as to the attitude which should be adopted to the Turk than those which finally found expression in the treaty of Sèvres.

## AFRICA.

*The Bantu: Past and Present.* By S. M. Molema. Edinburgh: Green and Son, 1920. *Price 25s. net.*

The author of this volume is a Bantu, or rather a Muntu, for that, we

repeatedly learn from the volume, is the singular of Bantu. In a volume of 400 pages he has given us, as he states on his title-page, an ethnographical and historical study of the native races of South Africa. It is a study containing much that deserves the serious and earnest attention of the people of this country as still the governing people for a large part of the area occupied by the Bantu race, though we have overtly divested ourselves in a large measure, if not wholly, of that responsibility in the area with which the author is mostly concerned, that of the Union of South Africa It is written in good English, in a temperate and dispassionate tone. One of the severest things he has to say against the whites of South Africa is that "in any country where two races, separated by a wide intellectual gap, live side by side, some members of the more advanced are apt to assume [an] ungenerous attitude to the efforts of the backward race" (p. 234), and he does not omit to note, as on pages 247-8, some honourable exceptions. But, perhaps, the best way to show both the temper of the author and the nature of his leading conclusions is to quote the following passage, giving what he calls—

"*The Balance Sheet.* . . . It may now be asked: Have the Bantu benefited materially by their contact with European nations? Have they, as judged by their present condition, gained or lost by that contact? Has the contact been for better or for worse?

"These questions are difficult to answer (from the view-point of the Bantu). It would be impossible in a few brief sentences to convey, even in a general way, the impressions, the psychology, and the feelings of the average Muntu on these questions, especially as often his conclusions are in part influenced by emotion and sentiment. But looking the matter squarely in the face, and considering it honestly, it must be said that the advantages outweigh the disadvantages only by very little. While a lot of good has undoubtedly accrued to the Bantu by their contact with Europeans in South Africa, a lot of ill has also come to them by that contact. Up to a certain point nearly every advantage had a corresponding disadvantage, every good a concomitant evil, every force in one direction an opposite and equal force. The effects thus neutralising each other, the advantages and good were, theoretically at least, *nil*. The slaughters of internecine wars were put a stop to, but have been replaced by the frightful mortality of new exterminating diseases. Slavery was abolished, but the freedman and his son have been dispossessed of their lands—their dearest possessions—and forced into economic servitude. Many have been released from the evils of tribal life, only to fall into the (at least morally as grave) vices of civilisation. Others have hopefully acquired education, only to find that it is Pisgah's mountain, from which they can view the Promised Land, with its rivers of milk and honey, without the possibility of entering it. With education they thought their chance would come, that merit in them would be recognised *practically*, and intellectual acquisitions receive their deserts; with education they find their chance must go, that merit and demerit make just about an equal impression, and mental triumphs seem to count for nothing.

"This education which has been given them, and which they are so assiduously acquiring, cannot but be, in a way, a source of unhappiness. It has refined and is refining their senses and sensibilities, only that they may the more poignantly feel their present injuries, it has awakened hope and ambition only to cruelly disappoint them. . . .

"But however much education may sensitise the Bantu, or at least, by removing the protecting cloak of philosophic ignorance, expose them, none of them can merely on that account denounce it, or for a moment desire to go back into barbarism. In fact, at bottom they are thankful to the white man. They are in

particular deeply grateful to the missionary who has educated them with very little cost to themselves, has taught them some truths about this life and the next, and instructed them in some simple civilised crafts" (pp. 319-21).

*Marrakech dans les palmes.* By André Chevrillon. Paris: Calmann-Levy, 1919. *Price* 4 *fr.* 90 *c.*

The well-known author of *Études Anglaises* here describes the capital of Morocco during the spring of 1913 and November 1917. He visited the marvellous gardens of the Mamounya, a delicious retreat from the sun and dust, the creation of some Moslem sultan or vizier, and which contains a building to be converted by the French Government into a civilian hospital, so indispensable for the city of Morocco. The French military hospital called l'Aguedal was formerly a Moorish palace, and the summer residence of the Sultan. On revisiting Morocco in 1917 the author says he found it apparently untouched by the war. He found, however, a great increase in schools, which now contained 6000 pupils, with a high school where Greek, Latin, but specially Mathematics, Physics, and Chemistry were taught: "Car on veut propager dans ce vieux pays d'Islam la culture qui fait aujourd'hui la superiorité pratique et la force inouie." While obtaining the despatch of thirty-five battalions of Moorish soldiers to France to assist her in the war, the French Government continued to give to Morocco museums, schools, and educational institutions of every kind. With French aid, roads and railways begin to cover Morocco; her commerce and productions increase by sudden leaps; her towns become clean and organised; her ports are deepened, and order and peace are established.

## AMERICA.

*The Brazilians and their Country.* By Clayton Sedgwick Cooper. London: William Heinemann, 1919. *Price* 15*s. net.*

Portugal may at the present time occupy an obscure place among the nations of the world, but her magnificent work in the sixteenth century can hardly be overestimated, and her early voyagers and hardy colonists left far-reaching effects behind them. Probably no other nation has so powerfully, widely, and deeply left its mark. Whether we look to the East or to the West, we cannot but be impressed with her achievements. In India, Ceylon, China, Africa, and the New World, Portuguese established themselves. Those worthy cavaliers and wonderful pioneer navigators may have been intent on treasure-hunting and power, but at any rate in Brazil they left descendants, mixed as they are at the present day, who are still tinged with Portuguese ideals, who exhibit traces of racial unity, and who are struggling to bring their leviathan country into its inheritance.

Modern conditions necessitate new avenues of trade being opened up and old ventures expanded. Americans are alive to this, among them Mr. C. S. Cooper, whose volume on the Brazilians and their country gives a sane, comprehensive, informed account of Brazil, its history as a kingdom and a republic, its commercial resources and potentialities, and discusses many other facts of interest to those who wish to increase their knowledge of the world, and find out where trade possibilities lie. Written in the first instance for Americans, the book cannot fail to be of the greatest value and highest importance to British business men. It is not a scrappy and superficial narrative compiled from second-hand sources or from the hasty observations of a lightning tour and embodying the misconceptions and ill-digested information inherent in that method of getting material for a book. Mr. Cooper has travelled extensively in the country, has kept his eyes open and

his mind active, and although he can wax enthusiastic over the pomp and splendour of nature's display (and it is difficult to avoid quoting him in this respect), his keenness of vision and sanity of judgment make his book a solid yet fascinating record of a finely endowed but sleeping country awaiting the quickening hand of the agriculturist, the railway engineer, the road-maker, and the enterprising business man. No phase in the life of the country is omitted, and whether he deals with the physical aspects, productions, water-power, education, republicanism, racial characteristics, home life, newspapers, or any other topic, he is painstaking, clear, and convincing, but not unduly optimistic.

Brazil is in the process of being enmeshed in the romantic toils of industrialism, but with her 5000 miles of coastline and an area of 3,292,000 square miles, she has only 24,000,000 people, most of them living near the coast. "It is a country that possesses several hundred thousand square miles of unoccupied territory, much of it utterly unexplored, thousands of square leagues of forests which have never yet resounded to the feet of civilised man, regions as extensive as half of Europe in which the deposits of iron, manganese, and minerals of almost every description await the approach of the world's need. . . . Such a country cannot retire from national greatness. The country has no deserts, but contains by far the largest section of fertile and unused land and river space to be found anywhere on the globe. . . . Brazil is happy in a diversity of climate—no kind of cultivation, ranging between the temperate and torrid zones, is alien to her possibilities." Her development depends on several factors—she needs State compulsory education, roads, railways, and people; and the greatest of these is people. As yet there are only 20,000 miles of railway, having no coherence and lacking connection with the enormous and valuable waterways.

Throughout his volume Mr. Cooper insists on those who would trade with Brazil knowing the country, its needs, people, language, point of view, etc. This may be trite, but it is fundamentally true and is too often forgotten. "To understand Latin America one must realise that the people are engaged in a herculean struggle to free themselves from inherited conditions, most of which are bad. Brazil is striving to convert a population into practical business men whose members are by nature . . . theorists and idealists." The old established commercial countries, like Britain, with wealth and experience, can help the Brazilians to attain their object, but they must become "simpatico" to this sensitive people, and in this connection Mr. Cooper hits some of his own countrymen some shrewd blows, and tenders them and others much good advice as to how intending traders should conduct themselves in this great south land.

This valuable and enlightening book is indexed and has a map and numerous illustrations.

*Men, Manners, and Morals in South America.* By J. O. P. Bland. London: William Heinemann, 1920. *Price* 12*s.* 6*d. net.*

Considering that Mr. Bland's impressions of South America are based on only three visits made to Brazil, Argentina, Paraguay, and Uruguay, during the war period, he is to be congratulated on the vivid and entertaining manner in which he has set forth not only the life, but the mentality of the denizens of these four Republics. His impressions are given with a clearness, colour, and discursive humour that afford a vivid picture of the countries and peoples, from highly placed Government officials to the children of the soil. Compared with most works that have appeared on South America in recent years Mr. Bland's easily takes first place for the close observation and literary charm that adorn its pages, and his delicate handling of difficult social matters is an outstanding feature.

The reader is introduced to South America by way of Rio de Janeiro, and the author has much to say about the great coffee centre of São Paulo and its numerous *fazendas*. The chapters on Argentina deal particularly with the cosmopolitan city of Buenos Aires, and a digression up the Paraná as far as the Southern Chaco. An amusing description of Asuncion, the capital of Paraguay, gives an insight into the languorous spirit of this lotus land of the *manaña* broken at short intervals by revolutions, of which no less than six occurred between 1881 and 1909, and this despite the circumstance that in the Homeric struggle of Paraguay from 1865 to 1870 against Argentina, Uruguay, and Brazil the population fell from 1,340,000 to 220,000, of whom only 28,746 were men!

A considerable part of the book is devoted to estancia life in Uruguay, and reference is incidentally made to the large number of natives, obviously of English stock, who are entirely without knowledge of the language or land of their forefathers.

A South American would probably describe this book as *mui simpatico*, and indeed Mr. Bland has reproduced the atmosphere of southern South America in a very delightful and sympathetic manner.

## PACIFIC ISLANDS.

*Stevenson's Germany: The Case against Germany in the Pacific.* By C. Brunsdon Fletcher. London: William Heinemann. *Price* 12*s. net.*

Mr. Brunsdon Fletcher, the Australian publicist, who is known as the author of *The New Pacific* and *The Problem of the Pacific*, continues and concludes in this book his argument against Germany as a Power in the Pacific from the point of view of the Australasian. His main contention is that Germany has been a bad neighbour everywhere, and that she is as great a danger to the peace of the world in the Pacific as recent events have proved her to be in Europe. Mr. Fletcher brings forward Robert Louis Stevenson as a witness, whose well-known sympathy with the Samoans led him to champion their cause as against German officialdom. Of Stevenson, Mr. Fletcher says that he "loved the Samoans, understood them, and would have died for them, had it been a question of saving his life by denying their claims or betraying them," and further, that though Governments might blunder and do injury to the natives by indifference or worse, he "represented the clear, earnest British spirit of fair play." "That he should have been moved to vehement protest against Germany in far-off Samoa, where no European Power could claim supremacy, and where the natives were nominally in possession and control, was in itself a remarkable thing, and it undoubtedly attracted attention at a time when Germany badly wanted to be left alone. But the iniquity of the German claim that might was right, and that nothing mattered when dealing with natives in the Pacific, or anywhere else, except to be strong enough, roused his fiercest resentment. He discerned then quite clearly the Germany which has since been revealed to us, and he wrote *A Footnote to History*, not because he liked the job, but because he could not help himself. He had to deliver his soul." As might be expected, the problem of native labour dominated all others, and Stevenson in his *Footnote* revealed what he knew of German doings in the matter of providing labour for their planters. The wants of the Samoan are easily provided for by fishing and by the produce of his own patch of taro and bananas, and he is not disposed to toil for foreign masters: hence the need for imported labour, which was supplied by devious methods, and the control of the workers was apt to lead to conditions not far removed from slavery. European plantations of cocoa-nut palms covering great tracts, the produce of which the native Samoans

might not touch, were an insult to their ideals of communal life. Mr. Fletcher quotes from Stevenson: "You ride in a German plantation and see no bush, no soul stirring; only acres of empty sward, miles of cocoa-nut alley; a desert of food. In the eyes of the Samoan the place has the attraction of a park for the holiday schoolboy, of a granary for mice. We must add the yet more lively allurement of a haunted house, for over these empty and silent miles there broods the fear of the negrito cannibal," escaped from the German compounds, after being carried in the Company's recruiting vessels from far away (page 43).

Germany was determined to possess the land, in pursuance of her ideal of a colonial empire, while Stevenson put the native first. "Lands which really belonged to the community were handed over by individual Samoans in exchange for rifles and the like. Not Germans alone, but other Europeans, shared in the spoil. The whole business was bad; and in the end native wars led to the division of the group, with Germany in possession of everything except the small islands already pre-empted in effect by the United States." Mr. Fletcher is careful to point out that the Samoans might have quarrelled without German incitement, and that it would be unfair to deny the value of a great deal of German enterprise; also that it would be equally unfair to forget that Britons and Americans had their share in spoiling the Samoans (page 45).

The arguments against continued German possession, as stated by Mr. Fletcher, are, first, that Germany has sought to treat the natives chiefly as instruments for developing German trade; and, second, that Germany's principal aim has been the strategic advantage of her foothold in the islands. "Australia and New Zealand hold the conviction that to restore the German colonies in the Pacific would only be to give her *points d'appui* for future aggression. Australia and New Zealand have paid for their safety (as part of a great Empire) with their best life's blood. . . . Therefore, as Belgium is to be put out of danger from future attack, so Australia feels that her safety demands the sacrifice of German possessions. How they shall be disposed of is not a matter for discussion here; but, at any rate, Germany cannot again be accepted by Britons as a neighbour in the Pacific." This, of course, is, like the rest of Mr. Fletcher's book, a special plea from the Australian side which will no doubt carry weight, especially in Australia and New Zealand, when the question of the ultimate disposal of German colonies comes up for decision. It is worth noting that Stevenson, in his *Footnote to History*, gives credit to the German officials in Samoa, and could find much to like, and a good deal to admire, in men who otherwise treated the unfortunate Samoans with scant consideration (page 91).

Mr. Fletcher prints in the form of an Appendix the whole of Stevenson's noble and eloquent address to the chiefs assembled at Vailima who made for him "The Road of Gratitude."

*White Shadows in the South Seas.* By FREDERICK O'BRIEN. With many Illustrations from Photographs. London: T. Werner Laurie, Ltd., 1920. *Price* 25*s. net.*

Mr. O'Brien spent several months in the Marquesas Islands, staying for most of the time in "Bloody-Hiva-oa," but paying visits to others of the islands. He lived practically as a native among the natives, and gained an intimate knowledge of their habits and customs. As is the case in all the Polynesian islands the numbers of the natives are decreasing with startling rapidity, and Mr. O'Brien was fortunate in catching his impressions, since soon there will be none left to catch. It seems that the Polynesian is really dying of boredom. The old, interesting, bloody days have gone for ever, food of a kind is abundant and easily

procurable, housing troubles are non-existent, consequently there is literally nothing to do. The white planter laments the fact that the islanders simply refuse to work for him, but why should they work when the necessaries of life are certain without it, and when there is little or no desire for the luxuries! The enervating, equatorial climate has doubtless much to do with the prevailing inertness of the people, for even the whites gradually lose much of their native energy. It is doubtful, therefore, whether colonisation by another race would have results of permanent value. Mr. O'Brien's book is brightly written in spite of the melancholy undercurrent, and he has many sprightly incidents to relate. The great gamble for matches, resulting in one man acquiring the whole stock of the islands, and his disappointment when the natives in desperation reverted to making fire by rubbing two sticks, is told with rollicking humour. The book is well produced and abundantly illustrated. A map would have been of assistance, and an index is lacking. We recommend to the author, in the event of a second edition, the compilation of a real index, which could be made very entertaining as well as instructive.

## EDUCATIONAL.

*Outdoor Geography.* By HERBERT HATCH, M.Sc. 8vo. Pp. xx. + 121. London: Blackie and Son, Ltd., 1920. *Price 3s. net.*

Mr. Hatch is a firm believer in the value of studying geography at first hand, *i.e.* out of doors, and has compiled this useful book to show how much can be done with children to stimulate and sustain their interest in the geographical phenomena to be observed in their immediate neighbourhood. In six sections dealing with Sky, Weather Observation, Plans and Maps, Heights and Contours, Land and Sea, and Human Geography, he reveals his method of teaching pupils to observe and think. A pleasing feature is his insistence on the poetic view of geography, and to show how closely literature and geography are related, he supplies thirty-five quotations from poets, ranging from Shakespeare to Stevenson. Teachers will find much of value in the book, which is amply illustrated.

*Historical Geography of Britain and the British Empire* (in Two Books). Book I.—The Making of England; The Making of Empire; The Establishment of Empire—B.C. 55 to A.D. 1815. By THOMAS FRANKLIN. Edinburgh: W. and A. K. Johnston, Ltd. *Price 2s. net.*

This "Historical Geography" is somewhat difficult to place. It is more a history than a geography, for it attempts a consecutive record of the history of Britain, yet, as history, it is necessarily so extremely condensed in parts as to unfit it for being in any sense a historical text-book. On the other hand, while not an ordinary student's history text-book, this "Historical Geography," of a little over two hundred pages, is too slight in its treatment to be a work for the specialist student. The volume may be described as an Outline History, with particular reference to the bearing of geographical factors, and it will be of use to teachers of History whose studies may not have included the "Inter-relations of History and Geography." The Introduction and the paragraphs in which broad generalisations are made will be found to be specially stimulating and instructive. After all is said, however, one finds oneself, after reading the book, of the opinion that the bearing of geographical factors upon the course of History should be emphasised in an ordinary historical text-book rather than made the theme of a special volume.

A considerable number of misleading or actually erroneous statements dis-

figure the book—due, possibly, to rapid unverified composition. Harold as chief adviser of King Edward the Confessor, and Harold as King Edward's successor are confounded (p. 22); Edgar Atheling is not distinguished from his nephew King Edgar, son of Malcolm Canmore and Queen Margaret (p. 55); the decision of James VI. and I. at the Hampton Court Conference, we are told on page 113, "made enemies of both the Romanists and the Puritans," and "led to such plots as the Gunpowder, Main, and Bye Plots," the fact, of course, being that the Main and Bye Plots preceded the Conference; contrary to history, Wellington's victory of Talavera is here placed *subsequent* to occupation of the Lines of Torres Vedras; and both Talavera and Fuentes d'Onoro are here placed *prior* to the retreat of Sir John Moore upon Corunna (p. 204); we are told on page 205 that "the Prussians were defeated by Napoleon at Quatre Bras." These instances by no means exhaust the number of slips. Several misprints in dates also offend.

*The Teaching of Geography to Children.* By LILY WINCHESTER, Lecturer in Geography, University of Liverpool; with Preface by PERCY M. ROXBY, Professor of Geography, University of Liverpool. London: Methuen and Co., Ltd., 1920.

The "children" of the title are young people from six to ten years old. The "Geography" is not geographical knowledge in the ordinary sense: by "the teaching of Geography" is meant the training of the minds of young people to observe, question, and in measure understand the world immediately about them, by way of preparation for the appreciation of geographical knowledge in the stricter sense. Miss Winchester's own statement is that at this stage "the aim of the Geography teacher is two-fold—

1. To teach the child to appreciate something of the physical environment in which he lives.
2. To develop in him a broad world-outlook and sympathy."

From these points of view Miss Winchester's book thoroughly commends itself. For every teacher engaged in the opening and training of the minds of young people, the book is most suggestive; and for the Geography teacher in particular Miss Winchester has vindicated a claim to a large share in such cultural opening and training of young minds. The "Nature Knowledge" of the Elementary School course is inadequate if limited, as it generally is, to observation of plant life. Miss Winchester, it will be seen, belongs to the new class of Geography teachers who rightly claim for their subject that, while eminently "useful," it is "essentially a liberalising and humane study." The study of foreign and ancient languages being so largely, until the advanced stages, formal or unsubstantial study, Geography, rightly taught, may well claim to be the introduction of the young to foreign peoples. This, as we have seen, is Miss Winchester's second "aim" for the Geography teacher of the young. The fundamental standpoint of Geography is not to be commercial inter-relationship, much less the possible exploitation of other lands, but sympathetic acquaintance with other peoples and their homes—the brotherhood of man. Here the Geography teacher has the advantage of finding the young mind almost calling for pruning and cultivation. Robert Louis Stevenson's child apostrophises—

> "Little Indian, Sioux or Crow,
> Little frosty Eskimo,
> Little Turk or Japanee,
> O! don't you wish that you were me?"

Although, *pace* Stevenson and Miss Winchester, one questions whether the real interest of children is in the children of other lands rather than in the grown-ups

of other lands. Certainly, in the "endless imitation" of children, they act the grown-ups, not other children. Space does not permit of illustration of the very successful simplification of Nature Study, Meteorological Observations, and even of Map-reading, with which this book abounds.

*The Geography of Plants.* By M. E. HARDY, D.Sc., Oxford, at the Clarendon Press, 1920. *Price 7s. 6d. net.*

In the preface to the same author's *Introduction to Plant Geography*, published in 1913, Professor Herbertson stated that "it will be followed by a more advanced book." The book referred to is the volume under review, the appearance of which has been delayed by many causes, some being the death of Professor Herbertson, the departure of the author to South America, and the war. In the earlier work Part III. contained a survey of the continents, and this "has served as the plan for the new book, and has been expanded into a full discussion of the conditions in which plants flourish, and their distribution in the great geographical divisions of the earth."

The book is well illustrated with 115 maps and photographs, the latter being in the majority. In addition to a geographical index there is an index of plant names. Those who read and enjoyed the more elementary volume will find in this book a worthy successor.

## NEW MAPS AND ATLASES.

### EUROPE.

**ORDNANCE SURVEY OF SCOTLAND.**—The following publications were issued from 1st to 30th April 1920 :—

Six-inch Maps (revised). Quarter-sheets with contours in red. Price 1s. 6d. each. *Fifeshire.*—6 SE.

1 : 2500 Scale Maps (revised), with houses stippled and with areas. Price 5s. each. *Roxburghshire.*—Sheets 36—9 ; 38—6.

The following publications were issued from 1st to 31st May 1920 :—

1 : 2500 Scale Maps (revised), with houses stippled and with areas. Price 5s. each. *Roxburghshire.*—Sheets 34—16 ; 35—14.

The following publications were issued from 1st to 30th June :—

One-inch Maps. Printed in Colours. Deeside, Oban (Tourist Map). Price 2s. each.

Six-Inch Maps (revised). Quarter-sheets with contours in red. Price 1s. 6d. each. *Fife and Kinross.*—19 SW. *Renfrewshire.*—8 NE.

1 : 2500 Scale Maps (revised), with houses stippled and with areas. Price 5s. each. *Roxburghshire.*—Sheets 38—1, 2, 3, 5, 11.

Special Enlargements from 1 : 2500 to 1 : 1250 Scale. Price 6s. each. *Renfrewshire.*—Sheet 2—6 NW., NE.

**ADMIRALTY CHARTS—**

**Scotland, East Coast.**—Elie to Arbroath, including St. Andrews Bay. August 1920. No. 149. Price 3s.

" " River Tay. August 1920. No. 1481. Price 3s.

" " Logie Head to Tarbet Ness, including entrances to Inverness and Cromarty Firths. 1920. No. 3547. Price 4s.

" Caledonian Canal. June 1920. No. 1791. Price 3s. Admiralty Office, London.

**BARTHOLOMEW'S HALF-INCH TO MILE MAP OF SCOTLAND.** New Editions. 1920.

**Sheet 8. Edinburgh District.** Orographical colouring and Roads.

**Sheet 12. Central Perthshire.** Orographical colouring and Roads.

Price, each sheet, paper, 1s. 6d. net; mounted on cloth, 3s. net.

*John Bartholomew and Son, Ltd., Edinburgh.*

**BARTHOLOMEW'S CONTOURED ROAD MAP OF SCOTLAND.** New Edition. 1920. Scale 10 miles to inch. Orographical colouring and roads.

*John Bartholomew and Son, Ltd., Edinburgh.*

**BARTHOLOMEW'S HALF-INCH TO MILE MAP OF ENGLAND.**—New Editions. 1920.

**Sheet 8. Liverpool and Manchester.** Orographical colouring and Roads.

**Sheet 36. South Devon.** Orographical colouring and Roads.

Price, each sheet, paper, 1s. 6d. net; mounted on cloth, 3s. net.

*John Bartholomew and Son, Ltd., Edinburgh.*

## NORTH AMERICA.

**RAILWAY MAP OF DOMINION OF CANADA.**—Scale 1 : 2,217,600. 1920.

*Department of the Interior, Canada.*

A new edition of this eight-sheet map of the Dominion, on which the former Grand Trunk and Canadian Northern Lines are now absorbed in the Canadian National Railways.

**MANITOBA, SASKATCHEWAN, AND ALBERTA.**—Map showing quarter-sections available for Homestead entry in each township. 7th edition. 1920. Scale 35 miles to an inch. *Department of the Interior, Canada.*

**CANADA.—Reconnaissance Map of the North Selkirk Mountains and the Big Bend of the Columbia River, British Columbia.** 1915. Scale 1 : 250,000.

*Surveyor-General's Office, Canada.*

## ATLASES.

**THE "TIMES" SURVEY ATLAS OF THE WORLD.**—A comprehensive series of Maps reduced from the National Surveys of the World and the special surveys of travellers and explorers, with General Index of over two hundred thousand names. Prepared at the Edinburgh Geographical Institute under the direction of J. G. Bartholomew, LL.D., F.R.S.E., F.R.G.S., Cartographer to the King.

To be published in thirty-seven parts, of which Parts I. to XVIII. have already appeared. Price 2s. 6d. per part.

*Office of "The Times," London.*

**"THE DAILY TELEGRAPH" VICTORY ATLAS OF THE WORLD.**—Edited by Alexander Gross, F.R.G.S. To be completed in about forty-eight parts, of which Parts I. to XLVI. have been published. Price 2s. per part.

*"Geographia" Ltd., London.*

**"MULTUM IN PARVO" ATLAS OF THE WORLD.** 64 pages of Maps and Index. New Edition. *W. and A. K. Johnston, Ltd., Edinburgh.*

**OROGRAPHICAL, REGIONAL, AND ECONOMIC ATLAS. Part I. British Isles.** Price 1s. 6d. net. *W. and A. K. Johnston, Ltd., Edinburgh.*

This is the first part of a new series which will consist of seven parts in all. In the present part there are 32 pages of maps, of which 9 are in colour. The maps give a general view of the climatic and economic conditions within the area.

# INDEX: VOL. XXXVI.

*In the following Index the* ALPHABETICAL ORDER *is adhered to throughout. Titles of Papers are in deeper type. Contraction,* rev. = *Review in the Magazine.*


ABU SHAHRAIN, Excavating the Ancient Mound at, R. C. Thompson, 30.
Admiralty Charts—General, 212, 216.
—— —— Scotland, New Publications, 212, 287.
Aerial. Britain and Air Power, 123.
—— Photography, Col. Winterbotham, 37.
—— Photo Surveys in the East, Capt. H. Thomas, 37.
—— Route, Conditions Governing the Selection of an, Col. Fowler, 37.
Africa. Cape to Cairo Railway and Train Ferries, 131.
—— Colonisation of, Sir A. Sharpe, 38.
—— From the Cape to Cairo (Grogan and Sharp), *rev.*, 137.
—— Map showing Forest Regions and Timber Trees (Davies), *rev.*, 216.
—— New Frontiers, *supp.*, 7.
—— British East, Profit and Sport in (Cranworth), *rev.*, 204.
—— —— —— The "Red Book" 1919, *rev.*, 67.
—— Central, Map, 215.
—— —— Railway Communications, Sir A. Sharpe, 131.
—— East. New Frontiers, 128.
—— —— Three Years of War in (Buchanan), *rev.*, 66.
—— South, Map, 215.
—— —— The Bantu, Past and Present (Molema), *rev.*, 211, 279.
—— —— The Glamour of Prospecting (Cornell), *supp.*, 3.
—— South-West, Geographical description, R. Pimienta, 53.
Agostini, Calendario Atlante de, *supp.*, 5.
—— Ist. Geogr., Quadro Geografico della Vittoria, 214.
Agra. Administration Report, 212.
—— District Gazetteer, *supp.*, 2.
Aland Question, The (Sederholm), *supp.*, 2.
Alberta, Homestead Map, 288.
—— Northern, Map showing disposition of Lands, 215.
Algeria. L'Algérie et la Métropole (Gautier), *rev.*, *supp.*, 2.
Algeria, Sahara of, E. J. Gautier, 126.
Allen, W. S. D., The Turks in Europe, *rev.*, 135.
Alsace-Lorraine, Trade connections, 123.
Alsop, G. F., My Chinese Days, *rev.*, 198.
America, North, Map showing Forest Regions and Timber Trees (Davies), *rev.*, 216.
—— South, Cruise of the *Falcon*, 212.
—— —— Map showing Forest Regions and Timber Trees (Davies), *rev.*, 216.
—— —— Men, Manners, and Morals in (Bland), *rev.*, 282.
—— —— Vegetation, M. Vahl, *supp.*, 8.
Animal Life in Scotland (Ritchie), *rev.*, *supp.*, 1.
Annual Report, 289.
**Antarctic, an Epic of the, *rev.*, 39.**
—— Results of Voyage of S. Y. *Scotia*, *supp.*, 4.
—— With the *Aurora* 1911-14 (Davis), *rev.*, 68.
Antilles, Lesser, Alone in the Caribbean, (Fenger), *rev.*, 67.
Antonelli, E., Bolshevist Russia, *rev.*, 272.
**Appalachian Coalfield, Some Geographical Factors in the Northern. By P. W. Bryan, 232.**
Arctic—Has the North Pole been Discovered? (Hall), *rev.*, 206.
—— Proposed Danish Expedition, 267.
Argentina (Bland), *rev.*, 282.
—— In the Wilds of South America (Miller), *rev.*, 137.
—— La République Argentine (Denis), *supp.*, 3.
—— The Great South Land (Koebel), *rev.*, 137.
Arnot, F. S., Life and Explorations of (Baker), *supp.*, 4.
Asia, Geography of (Martin), *rev.*, 210.
—— The New Map of (H. A. Gibbons), *rev.*, 197.
**Asia, Central, Russian. By Ella Christie, 85.**
—— —— Through Deserts and Oases of (Sykes), *rev.*, 200.
**Astronomy in Scandinavia, Primæval. By G. Schütte, 244.**

Atlases. A Progressive Course of Comparative Geography, 216.
—— *Daily Telegraph* Victory, 216, 288.
—— "Multum in Parvo" Atlas of the World (Johnston), 288.
—— New, 212, 287.
—— Geographical, Regional and Economic (Johnston), 288.
—— Philip's New School Atlas of Comparative Geography, 216.
**Aurousseau, M., A Contrast in Chalk-Lands, 158.**
Australia, Meteorology (Taylor), 211.
—— Western, Year Book, *supp.*, 4.

Bagley, A. L., Holiday Rambles in North Wales, 212, *rev.*, 273.
Baker, E., Life and Explorations of F. S. Arnot, *supp.*, 4.
**Baku and the Caspian. By Lt.-Col. A. C. Yate, 254.**
Balkans, Commerce of the, C. Day, *supp.*, 8.
—— the Black Sheep of the (Buxton), *rev.*, 196.
Ballard, C. R., Russia in Rule and Misrule, *rev.*, 134.
**Bamenda Division, Notes on the Cameroon Province. By Capt. L. W. G. Malcolm, 145.**
Bangor, Summer School of Geography, 194.
Bantu, Past and Present, The (Molema), 211, *rev.*, 279.
Barker, A. F., A Summer Tour through the Textile Districts of Canada and the U.S., *supp.*, 3.
Barnard, H. C., The Motherland in Pictures, *supp.*, 6.
Bartholomew, Capt. Ian, recommended as Hon. Secretary, 183.
—— Dr. J. G., Bequest to the Society, 183.
—— —— Council Minute *re* the late, 182.
—— —— 183.
—— —— The *Times* Survey Atlas of the World, *rev.*, 180, 216, 288.
Bartholomew's Contour Road Map of Scotland, 288.
—— Environs of London, 214.
—— Half-inch Map of England, 214, 288.
—— Half-inch Map of Scotland, 214, 288.
—— **New Atlas. By R. M. Rudmose Brown, 180.**
—— Political Map of the New Europe, 1920, *rev.*, 214.
—— Quarter-inch map of England, 214.
Basden, G. T, Among the Ibos of Nigeria, *supp.*, 2.
Baudesson, H., Indo-China and its Primitive People, *rev.*, 64.
Beaver, W. H., Unexplored New Guinea, *rev.*, 139.
Bear Island, Ceded to Norway, 111, 265.
**Beazeley, Lt.-Col. G. A., Survey Work in Mesopotamia during the War, 94, 189.**
Belgium and the Western Front (Muirhead), *rev.*, *supp.*, 1.
Belgium, In the Prison City, Brussels (Twells), *rev.*, 132.
—— Pilgrim's Guide to the Ypres Salient, *rev.*, *supp.*, 1.
—— The Making of a Nation (Linden), 212, *rev.*, 271.
Ben Nevis, Guide (MacRobert), *rev.*, 265.
Bengal, History of the Portuguese in (Campos), *rev.*, 136.
Bennett, S., Year Book of Western Australia, *supp.*, 4.
Berkshire, Byways in (Ditchfield), 212, *rev.*, 270.
Bertin, M. A., Utilisation of Tropical Forests, 191.
Bihar, Map, 214.
Blaikie, Dr. W. B., Prince Charles in the Lothians, Lecture, 183.
Blanchard, R., Geography of France, *rev.*, 273.
Bland, J. O. P., Men, Manners, and Morals in South America, *rev.*, 282.
Bluett, A., With our Army in Palestine, *rev.*, 279.
Bohemia (Lutzow), 211.
Bohemia, Future of (Seton-Watson), 211.
Bokhara, E. Christie, 89.
Bolivia: In the Wilds of South America (Miller), *rev.*, 137.
Bornu, Colloquial Arabic (Letham), *supp.*, 3.
Bournemouth and its Site, C. B. Fawcett, 31.
Brazil (Bland), *rev.*, 282.
—— A Travers la Forêt Brésilienne (Wagner), *rev.*, 205.
—— In the Wilds of South America (Miller), *rev.*, 137.
—— The Brazilians and their Country (Cooper), *rev.*, 281.
—— The Great South Land (Koebel), *rev.*, 137.
Brigham, A. P., Cape Cod and the Old Colony, *supp.*, 3.
Britain, Historical Geography (Franklin), 211; *rev.*, 285; *supp.*, 6.
—— Motherland in Pictures (Stow and Barnard), *supp.*, 6.
British Association: Cardiff Meeting, 269.
—— —— **Bournemouth Meeting of the, 29.**
British Columbia, Map of North Selkirk Mountains, 288.
British Empire (Wallis), *rev.*, 209.
—— —— Historical Geography (Franklin), 211, *rev.*, 285, *supp.*, 6.
—— —— Statistical Abstract, *supp.*, 5.
—— Isles, a Casual Geography (Martin), *rev.*, 70.
—— —— New Regional Geographies, *rev.*, 72.
Brooks, L., British Isles, New Regional Geographies, *rev.*, 72.

**Brown, R N. Rudmose, Bartholomew's New Atlas, 180.**
—— —— **Recent Developments in Spitsbergen, 111.**
—— —— Spitsbergen, *rev.*, 1.
Broz, A., First Year of Czecho-Slovak Republic, 211.
Bruce, Dr. W. S., and Spitsbergen Exploration, 2, 4, 7.
—— W. S., Falkland Islands Report, 266.
Brussels: in the Prison City (Twells), *rev.*, 132.
**Bryan, P. W., Some Geographical Factors in the Northern Appalachian Coalfields, 232.**
Buchanan, A., Three Years of War in East Africa, *rev.*, 66.
—— J. Y., Accounts Rendered of Work Done and Things Seen, *rev.*, 69.
Burky, C. A., The Economic Factor in the War, 55.
Burma, Map, 215.
Buxton, L., The Black Sheep of the Balkans, *rev.*, 196.

Cadell, H. M., Spitsbergen in 1919, *rev.*, 10.
Caille, Isle de (Fenger), *rev.*, 67.
Caithness (Campbell), *supp.*, 1.
Calvert, A. F., Togoland, *rev.*, 66.
**Cameroon Province, Notes on the (with Special Reference to the Bamenda Division). By Capt. L. W. J. Malcolm, 145.**
Campbell, H. F., Caithness and Sutherland, *supp.*, 1.
Campos, J. J. A., History of the Portuguese in Bengal, *rev.*, 136.
Canada, A Summer Tour through the Textile Districts (Barker), *supp.*, 3.
—— Commercial Handbook (Heaton), *rev.*, 138.
—— Map of North Selkirk Mountains, 282.
—— Map showing Natural Resources, 215.
—— Railway Map, 288.
**—— The Place-Names of. By R. Douglas, 154.**
—— To-day, 1920, 212.
—— Year Book, *supp.*, 3.
Cape to Cairo, From (Grogan and Sharp), *rev.*, 137.
—— —— Railway and Train Ferries, 130.
Cardiff and Neighbourhood (Hallett), *supp.*, 1.
Caribbean, Alone in the (Fenger), *rev.*, 67.
Carie, M. P., on Mauritius, 52.
Carmody, Prof., Camphor-growing in the West Indies, 194.
**Caspian, Baku and the. By Lt.-Col. A. C. Yate, 254.**
**Ceylon, The Lost Cities of. By G. E. Mitton, 16.**
**Chalk-Lands, A Contrast in. By M. Aurousseau, 158.**
Chapman, E. H., The Study of Weather, *rev.*, 71.
Cheng, Sih-Gung, Modern China: A Political Study, *rev.*, 109.
Chevrillon, André, Marrakech dans les palmes, *rev.*, 281.
China, Chance and Change in (Roe), *rev.*, 201.
—— Great Wall of, F. G. Clapp, *supp.*, 7.
—— In Unknown (Pollard), *rev.*, *supp.*, 2.
—— Modern: A Political Study (Cheng), *rev.*, 109.
—— My Chinese Day (Alsop), *rev.*, 198.
—— Peace Handbook (Prothero), *supp.*, 2.
—— The Mastery of the Far East (Brown), *rev.*, 107.
Chinnery, A. W., Awarded R.G.S. Cuthbert-Peek Grant, 129.
**Christie, E., Russian Central Asia, 85.**
Christmas Island, Annexed to the Gilbert and Ellice Islands Colony, 55.
Clapp, F. G., Great Wall of China, *supp.*, 7.
Clementi, C., Through British Guiana to the Summit of Roraima, *supp.*, 3.
Clerget, P., Panama Canal Traffic, 130.
—— Utilisation of the Rhone, 48.
Coal Production of the World, 232.
Colombia, In the Wilds of South America (Miller), *rev.*, 137.
Conway, Sir M., Mountain Memories, *rev.*, 206.
Cooper, C. S., The Brazilians and their Country, *rev.*, 281.
Cornell, F. C., The Glamour of Prospecting, *supp.*, 3.
Cornish, Dr. Vaughan, on the Geography of Imperial Defence, 33.
Cotswolds, Byways in Berkshire and the (Ditchfield), 212, *rev.*, 370.
Cotton in International Trade and Politics, G. M. M'Bride, 192.
Cowan, W., Early Views and Maps of Edinburgh, 47.
Cranworth, Lord, Profit and Sport in British East Africa, *rev.*, 204.
Crete, Mr. Trevor-Battye, 38.
Cuba, The Land of Opportunity (Musgrave), *rev.*, 67.
Cumberland, Earl of, Life and Voyages of George, Third (Williamson), *supp.*, 4.
Cvijić, Prof. J., Awarded R.G.S. Patron's Medal, 129.
Cyprus—E. C. Semple, 51.
—— Handbook of (Luke and Jardine), *rev.*, 199.
**Czaplicka, M. A., Ethnic versus the Economic Frontiers of Poland, 10.**
—— —— Awarded R.G.S. Murchison Grant, 129
—— —— mentioned, 31.
Czecho-Slovak Republic, T. G. Masaryk, President (Herben), 212.
—— —— —— (Seton-Watson), 211.
—— —— —— First Year of (Broz), 211.
Czecho-Slovaks, Great Britain and the (Nosek), 212.

"Daily Telegraph" Victory Atlas, 216, 288.
Davidson, N. J., Modern Travel, *supp.*, 5.
Davies, E. C., Serbian Life, *rev.*, 61.
—— J. H., Maps showing Forest Regions and Timber Trees, *rev.*, 216.
Davis, Capt. J. K., With the *Aurora* in the Antarctic, *rev.*, 68.
Day, C., Commerce of the Balkans, *supp.*, 8.
Dell, R., My Second Country, *rev.*, 195.
Denis, P., La République Argentine, *supp.*, 3.
Denmark, Hjemligt Helenskab (Schütte), *rev.*, 139, 189.
Ditchfield, P. H., Byways in Berkshire and the Cotswolds, 212; *rev.*, 270.
Dodecanese, O. H. T. Rishbeth, 31.
Douglas, R., Place-Names of Canada, 154.
Dover (Jerrold), *rev.*, 273.
Duerden, J. E., on the African Ostrich, 51.
Dumbartonshire (Mort), 211.
Dyal, H., Forty-four Months in Germany and Turkey, *rev.*, 208.

Easter Island, The Mystery of (Routledge), *rev.*, 141.
Edinburgh. Early Views and Maps, referred to, 47.
—— From the Castle to Holyrood (Skinner), *supp.*, 1.
—— University Calendar, *supp.*, 5.
Egypt. Survey sheets, 215.
—— The Libyan Desert (E. F. Gautier), 126.
Ellice Islands. Annual Report, *supp.*, 5.
Encyclopædia, New Age (Parrott), *supp.*, 5.
England. Byways in Berkshire (Ditchfield), 212; *rev.*, 270.
—— Coal Production, 233.
—— Half-inch Map (Bartholomew), 214, 288.
—— Hastings and Neighbourhood (Higgins), *rev.*, 273.
—— Folkestone and Dover (Jerrold), *rev.*, 273.
—— Motor Cycle Route Book (Harper), 211.
—— Quarter-inch Map (Bartholomew), 214.
—— Seaward Sussex (Holmes), 211; *rev.*, 269.
—— Some Geographical Aspects of Devolution in (C. B. Fawcett), 35.
—— The Blue Guides (Muirhead), 212.
Esson, Capt. C. C., Map-Reading made Easy, *rev.*, 210.
Esthonia. Les Esthoniens et la Question Esthonienne (Martna), 212; *rev.*, 270.
Ethnology. Man: Past and Present (Keane), *rev.*, 142.
Europe. Aftermath: Geographical Study of the Peace Terms (Newbigin), *supp.*, 5.
Europe. Authentic Series (Philip), 214.
—— Geography of (Huntington and Gregory), *rev.*, 71.
—— in the Melting-pot (Seton-Watson), *rev.*, 60.
—— International Rivers of. By Prof. L. W. Lyde, 73.
—— Map showing Forest Regions and Timber Trees (Davies), *rev.*, 216.
—— Political Map, 1920 (Bartholomew), *rev.*, 214.
—— Quadro Geografico della Vittoria, 214.
—— Smaller Schoolroom Map (Philip), 214.
—— The Reconstruction of. By John M'Farlane, 217.
Evans, Sir A., on the work of the British Association, 29.
Examination, Statistical Analysis of a Geography. By W. E. Whitehouse, 21.

Fairgrieve, J., Human Geographies, *rev.*, 72.
*Falcon*, Cruise of the, Voyage to South America, 212.
Falkland Islands, Report of Inter-departmental Committee, 266; *supp.*, 3.
Faris, J. T., Seeing the Far West, *supp.*, 3.
Farrer, R., Awarded R.G.S. Gill Memorial, 130.
Faucher, D., The Mountains of Macedonia, 125.
Faure, G., Wanderings in Italy, *rev.*, 62.
Fawcett, C. B., on Bournemouth and its Site, 31.
—— —— on some Geographical Aspects of Devolution in England, 35.
—— W., Flora of Jamaica, 211.
Fenger, F. A., Alone in the Caribbean, *rev.*, 67.
Fiji Islands: Islands Far Away (King), *supp.*, 4.
Finley, J., A Pilgrim in Palestine after its Deliverance, *rev.*, 135.
Financial Report, 293.
Finch, J. K., Topographic Maps and Sketch-Mapping, *supp.*, 6.
Fish, J. C., Technic of Surveying Instruments and Methods, *rev.*, 210.
Fiske, B. A., From Midshipman to Rear-Admiral, *supp.*, 4.
Fletcher, C. B., Stevenson's Germany, *rev.*, 283.
—— J. S., Leeds and Sheffield, *rev.*, 64.
Florida Wilds, In the Lower (Simpson), *supp.*, 3.
Folkestone (Jerrold), *rev.*, 273.
Forder, A., In and Around Palestine with Note-Book and Camera, *rev.*, 64.
Foreign Office (Historical Section) Handbooks, 212.
Forests, Utilisation of Tropical (M. A. Bertin), 191.

Formosa. Camphor-Growing (Prof. Carmody), 194.
Fox, H. W., Cape to Cairo Railway and Train Ferries, 131.
France, Geography of (Blanchard), *rev.*, 273.
—— Industry of Paris (M. Poëte), *supp.*, 7.
—— My French Year (Maud), *rev.*, 132.
—— My Second Country (Dell), *rev.*, 195.
—— Resources of Water Power, 58.
—— Romantic Roussillon (Savory), *rev.*, 63.
—— Utilisation of the Rhone (P. Clerget), 48.
—— Vital Statistics, 47.
Franklin, T., Historical Geography of Britain and the British Empire, 211; *rev.*, 285; *supp.*, 6.
**Fraser, G. M., The "Mounth" Passes over the Grampians, 116, 169.**

Gambia. Annual Report, *supp.*, 5.
Garbit, Col. H., Future of Madagascar, 189.
Gaulis, B. G., La France au Maroc, *rev.*, 136.
Gautier, E. F., Contrasts between the Algerian and Egyptian Sahara, 126.
—— —— L'Algérie et la Métropole, *rev.*, *supp.*, 2.
Geographical Society, Royal, Awards, 129.
**Geography Examination, Statistical Analysis of a. By W. E. Whitehouse, 21.**
—— Summer School at Bangor, 194.
—— Teaching to Children (Winchester), *rev.*, 286.
—— Text-Books. A Casual Geography of the British Isles (Martin), *rev.*, 70.
—— —— A Geography of Asia (Martin), *rev.*, 210.
—— —— Advanced Physical Geography (Morrow and Lambert), *supp.*, 6.
—— —— British Isles. New Regional Geographies, *rev.*, 72.
—— —— First Lessons in Geography (Marsden), *supp.*, 6.
—— —— Geography by Discovery (Jones), *supp.*, 6.
—— —— Geography of Europe (Huntington and Gregory), *rev.*, 71.
—— —— Historical Geography of Britain and the British Empire (Franklin), 211; *rev.*, 285; *supp.*, 6.
—— —— Human Geographies (Fairgrieve and Young), *rev.*, 72.
—— —— Introduction to Physical Geography (Newbigin), *supp.*, 6.
—— —— Macmillan's Graphic Geographies (Wallis), *rev.*, 209.
—— —— New Geography of Scotland (Newbigin), *rev.*, 209.
—— —— Outdoor Geography (Hatch), 212; *rev.*, 285.
Geography Text-Books. The Atlas Geographies—Scotland (Muir), *supp.*, 6.
—— —— The Progress Geography, *supp.*, 6.
Geological Survey—Scotland, *supp.*, 1.
**Geology. A Contrast in Chalk-Lands. By M. Aurousseau, 158.**
Germany. Beyond the Rhine (Henry), *rev.*, 60.
—— and Turkey, Forty-four Months in (Dyal), *rev.*, 208.
—— The New (Young), *rev.*, 195.
Gibbons, H. A., The New Map of Asia, *rev.*, 197.
Gilbert Islands, Annual Report, *supp.*, 5.
Glasgow Corporation Grant towards cost of special Magazine, 264.
—— Number *S.G.M.*, proposed, 264.
Globes, The New Era (Walters), *rev.*, 209.
Gold Coast and the War (Lucas), *rev.*, 202.
Graham, A., Lindisfarne and Holy Island, *supp.*, 1.
—— S., A Private in the Guards, *rev.*, 69.
**Grampians, The "Mounth" Passes over the. By G. M. Fraser, 116, 169.**
Greenland, Proposed Danish Expedition, 267.
Gregory, H. E., The Geography of Europe, *rev.*, 71.
—— Prof. J. W., Recommended as a Vice-President, 183.
Grogan, E. S., From Cape to Cairo, *rev.*, 137.
Gröndall, I., Norwegian, Self-taught, 211.
Guiana, British, In the Wilds of South America (Miller), *rev.*, 137.
—— —— Through (Clementi), *supp.*, 3.
**Guthrie, The Hon. Lord, Obit. By R. Richardson, 185, 264.**
—— —— —— Council Minute *re* the late, 182.

Hadfield, E., Among the Natives of Loyalty Group, *supp.*, 4.
Haig, Field-Marshal Earl, Presentation of the Society's Gold Medal, 44.
Hale, F., From Persian Uplands, *rev.*, 278.
Hall, T. F., Has the North Pole been Discovered? *rev.*, 206.
Hallett, H. M., Cardiff and the Neighbourhood, *supp.*, 1.
Hardy M., Geography of Plants, *rev.*, 287.
Harper, C. G., Motor Cycle Route Book—England and Scotland, 211.
Hastings and Neighbourhood (Higgins), *rev.*, 273.
Hatch, H., Outdoor Geography, 212; *rev.*, 285.
Hawaiian Islands, Rainfall, 191.
Hazell's Annual and Almanack, *rev.*, 143.

Heaton's Commercial Handbook of Canada, *rev.*, 138.
Heddle, J. G. F. M., Orkney and Shetland, 211.
Henry, M., Beyond the Rhine, *rev.*, 60.
Herben, J., T. G. Masaryk, President of the Czecho-Slovak Republic, 212.
Hevesy, A. de, Nationalities in Hungary, *rev.*, 61.
Higgins, W., Hastings and Neighbourhood, *rev.*, 273.
Hilton-Young, E., By Sea and Land, 211.
Hinks, A. R., The Plebiscite Area of Upper Silesia, 125.
Högbom, B., Coal Resources of Spitsbergen, 6.
Holmes, E., Seaward Sussex, 211; *rev.*, 269.
Holy Island, Lindisfarne and (Graham), *supp.*, 1.
Horner, D. W., Meteorology for All, *rev.*, 144.
Hubbard, G. D., Industrial Developments in the United States, *supp.*, 8.
—— G. E., Day of the Crescent (Turkey), 211; *rev.*, 274.
Hungary, Nationalities in (Hevesy), *rev.*, 61.
Huntington, E., The Geography of Europe, *rev.*, 71.

BOS OF NIGERIA, Among the (Rasden), *supp.* 2.
Ice, Static Power of Melting, Mr. Trevor-Battye, 38.
Iceland, Botany of (Ostrup), *supp.*, 2.
—— Eruption of Katla, K. Sapper, 265.
mperial Defence, Geography of, Dr. Vaughan Cornish, 33.
India at the Death of Akbar (Morland), 211; *rev.*, 276.
—— Government Surveys, 214, 215.
—— Moral and Material Progress, *supp.*, 2.
—— Railway Map, 214.
—— Sind, Agra, and Oudh, Gazetteer, *supp.*, 2.
—— Women of (Rothfeld), *supp.*, 2.
Indo-China and its Primitive People (Baudesson), *rev.*, 64.
Inglis, H. R. G., Early Views and Maps of Edinburgh, 47.
—— —— Lecture on the Early Maps of the Lothians, 183.
Iona, A History (M'Neill), *rev.*, *supp.* 1.
Italy, Future of, M. Ch. Seignobos, 47.
—— Wanderings in (Faure), *rev.*, 62.

JAMAICA, Flora (Fawcett), 211.
Japan, Modern (M'Govern), *rev.*, *supp.*, 2.
—— Peace Handbook (Prothero), *supp.*, 2.
—— Samurai Trails (Kirtland), *rev.*, 65.
—— The Harvest of (Luffmann), 211; *rev.*, 274.
Japan, The Mastery of the Far East (Brown), *rev.*, 107.
Jardine, D. J., Handbook of Cyprus, *rev.*, 199.
Jastrow, M., Eastern Question and Solution, 211.
Jerrold, W., Folkestone and Dover, *rev.*, 273.
Joelson, F. S., The Tanganyika Territory, *supp.*, 3.
Johnston, N. M., Diploma of Fellowship awarded, 182.
Johnston's Maps showing Forest Regions and Timber Trees, *rev.*, 216.
—— "Multum in Parvo" Atlas of the World, 288.
—— Orographical, Regional, and Economic Atlas, 288.
Jones, E. H., Road to En-dor, *rev.*, 198.
—— J., Geography by Discovery, *supp.*, 6.
—— R., on the Site of Westminster, 37.

KÁLYMNOS, O. H. T. Rishbeth, 33.
Katla, Eruption of, K. Sapper, 265.
Kauai, Rainfall, 191.
Keane, A. H., Man: Past and Present, *rev.*, 142.
Keltie, Sir J. S., Statesman's Year Book, *supp.*, 5.
Keynes, Mr., On German Coal Requirements, 220.
King, A. G., Islands Far Away, *supp.*, 4.
Kirkcudbrightshire (Learmonth), *rev.*, *supp.*, 1.
Kirtland, L. S., Samurai Trails, *rev.*, 65.
Koch, L., Proposed Expedition to Greenland, 267.
Koebel, W. H., The Great South Land, *rev.*, 137.
Korea, The Mastery of the Far East (Brown), *rev.*, 107.
Korniloff, General, Geographer and Explorer, 129.
Kós, O. H. T. Rishbeth, 33.

LAMBERT, E., Advanced Physical Geography, *supp.*, 6.
Langhans, P., Sleswig Plebiscite Area, 266.
Lansen, C. A., Falkland Islands: Methods of Industry, 267.
Launay, L. de, Problèmes Économiques d'après Guerre, *rev.*, 133.
Learmonth, W., Kirkcudbrightshire and Wigtownshire, *rev.*, *supp.*, 1.
Lee, G. W., Geological Memoir—Raasay and Skye, *supp.*, 1.
Leeds (Fletcher), *rev.*, 64.
Leeward Islands, Annual Report, *supp.*, 5.
L'Estrange, P. H., A Progressive Course of Comparative Geography, 216.
Letham, G. J., Colloquial Arabic, *supp.*, 2.
Libyan Desert, E. F. Gautier, 126.

Linden, H. van der, Belgium: The Making of a Nation, 212; *rev.*, 271.
Lindisfarne and Holy Island (Graham), *supp.*, 1.
London and its Environs: The Blue Guides (Muirhead), 212.
—— Environs of, Map (Bartholomew), 214.
—— Motor Cycle Route Book (Harper), 211.
Lothians, Early Maps of the, Lecture by H. R. G. Inglis, 183.
—— Prince Charlie in the, Lecture by Dr. W. B. Blaikie, 183.
—— The Gael in the, Lecture by Prof. J. W. Watson, 183.
—— The Roman in the, Lecture by Dr. G. Macdonald, 183.
Loyalty Group, Among the Natives of (Hadfield), *supp.*, 4.
Lucas, Sir C., Gold Coast and the War, *rev.*, 202.
—— W., The "Leading" Mapping Book, *rev.*, 144.
Luffmann, C. B., The Harvest of Japan, 211; *rev.*, 274.
Luke, H. C., Handbook of Cyprus, *rev.*, 199.
Lutzow, Count, Bohemia, 211.
**Lyde, L. W., International Rivers of Europe, 73.**
—— Prof. L. W., mentioned, 30.
Lyons, Col. H. G., Atlas of the Normal Values of the Meteorological Elements for the Mediterranean Sea, *rev.*, 214.

M'Bride, G. M., Cotton, International in Trade and Politics, 192.
Macdonald, Dr. G., Lecture on the Romans in the Lothians, 183.
**M'Farlane, John, The Reconstruction of Europe, 217.**
M'Govern, W. M., Modern Japan, *rev.*, *supp.*, 2.
**Mackenzie, Rev. Robert, Obituary, 122.**
Macmillan's Graphic Geographies, *rev.*, 209.
M'Neill, F. M., Iona: A History, *rev.*, *supp.*, 1.
MacRobert, H., Guide to Ben Nevis, *rev.*, 265.
Macedonia, Geography of, D. Faucher, 125.
—— —— A. Ogilvie, 126.
Madagascar, Future of, Col. H. Garbit, 189.
Mainland, T., Orkney and Shetland, 211.
Majid, A., Malay Self-Taught, *supp.*, 6.
Malay Self-Taught (Majid), *supp.*, 6.
**Malcolm, Capt. L. W. G., Notes on the Cameroon Province (with Special Reference to the Bamenda Division), 145.**
Manitoba. Homestead Map, 288.
Map-Reading Made Easy (Esson and Philip), *rev.*, 210.
Mapping Book, The "Leading" (Lucas), *rev.*, 144.
Maps of the Lothians, Early, Lectures by H. R. G. Inglis, 183.
—— Ordnance Survey Maps: Their Meaning and Use (Newbigin), *supp.*, 6.
—— Topographic Maps and Sketch Mapping (Finch), *supp.*, 6.
Marquesas Islands (O'Brien), 284.
Marsden, E., First Lessons in Geography, *supp.*, 6.
Martin, J., A Casual Geography of the British Isles, *rev.*, 70.
—— A Geography of Asia, *rev.*, 210.
Martna, M., L'Esthonie, 212; *rev.*, 270.
Masaryk, T. G., President of the Czecho-Slovak Republic (Herben), 212.
—— The Spirit of Russia, *rev.*, 62.
Masters, H. and W. E., In Wild Rhodesia, *supp.*, 3.
Massey, W. T., Allenby's Final Triumph, *rev.*, *supp.*, 2.
Maud, C. E., My French Year, *rev.*, 132.
Maurel, A., A Month in Rome, *rev.*, 133.
Mauritius, Claim for Return to France.
—— M. P. Carie, 52.
Mediterranean Sea, Atlas of the Normal Values of the Meteorological Elements for the (Lyons), *rev.*, 214.
Mesopotamia (Jastrow), 211.
—— **during the War, Survey Work in. By Lt.-Col. G. A. Beazeley, 94.**
—— Lower, Explorations, R. C. Thompson, 30.
—— Marvellous (Parfit), 221.
—— My Campaign in (Townsend), *rev.*, 279.
—— Northern, Ancient Piedmont Route, E. C. Semple, 49.
—— Ruins on the Tigris near Samarra, Col. G. A. Beazeley, 189.
Meteorology, Atlas of the Normal Values of the Meteorological Elements for the Mediterranean Sea, *rev.*, 214.
—— Australian (Taylor), 211.
—— British Rainfall 1918 (Mill), *rev.*, 70.
—— for All (Horner), *rev.*, 144.
—— Rainfall in Relation to Configuration (Salter), *rev.*, 70.
—— The Relation of Wind to the Distribution of Barometric Pressure (Shaw), *rev.*, 143.
—— The Study of Weather (Chapman), *rev.*, 71.
Mill, H. R., British Rainfall 1918, *rev.*, 70.
Miller, L. E., In the Wilds of South America, *rev.*, 137.
**Mitton, G. E., The Lost Cities of Ceylon, 16.**
Moir, John W., Diploma of Fellowship awarded, 182.
Molema, S. M., The Bantu, Past and Present, 211; *rev.*, 279.
Montyn, A. M. M., A New Principle of International Law, *supp.*, 5
Moreland, W. H., India at the Death of Akbar, 211; *rev.*, 276.
Morgan, Dr., Explorations in Lower Mesopotamia, 31.

Morocco—La France au Maroc (Gaulis), *rev.*, 136.
—— Marrakech dans les palmes (Chevrillon), *rev.*, 281.
Morrow, F., Advanced Physical Geography, *supp.*, 6.
Mort, F., Dumbartonshire, 211.
Motor Cycle Route Book, England and Scotland (Harper), 211.
Mountain Memories (Conway), *rev.*, 206.
Mountaineering Art (Raeburn), *supp.*, 5.
**Mounth Passes over the Grampians. By G. M. Fraser, 116.**
Muir, T. S., Scotland: The Atlas Geographies, *supp.*, 6.
Muirhead, F., Belgium and the Western Front, *rev.*, *supp.*, 1.
—— The Blue Guides, 212.
Muntanar, Chronicle of (Hakluyt Soc.), *supp.*, 5.
Musgrave, G. C., Cuba: The Land of Opportunity, *rev.*, 67.
Mysore, Rainfall, 212.
Mythology, Hjemligt Hedenskab (Schütte), *rev.*, 139, 189.

Nansen, Dr. F., on the position of Wineland, 53.
Napier, Col., on Persia, 38.
Nationality and Internationalism: Geographical Aspects of, M. I. Newbigin, 31.
Newbigin, M. I., Aftermath: Geographical Study of the Peace Terms, *supp.*, 5.
—— Introduction to Physical Geography, *supp.*, 6.
—— New Geography of Scotland, *rev.*, 209.
—— on Geographical Aspects of Nationality and Internationalism, 31.
—— Ordnance Survey Maps: Their Meaning and Use, *supp.*, 6.
New Guinea, Annual Report, *supp.*, 4.
—— Unexplored (Beaver), *rev.*, 139.
New South Wales, Year-Book, *supp.*, 4.
Nigeria, Among the Ibos of (Basden), *supp.*, 2.
—— Annual Report, *supp.*, 6.
—— Colloquial Arabic (Letham), *supp.*, 2.
—— Southern, Survey Sheet, 215.
Nosek, V., Great Britain and the Czecho-Slovaks, 212.
Norwegian, Self-Taught (Gröndahl), 211.

O'Brien, F., White Shadows in the South Seas, *rev.*, 284.
Obst, E., Explorations in Tanganyika Territory, *supp.*, 7.
Oceanography, Accounts Rendered of Work Done and Things Seen (Buchanan), *rev.*, 69.
—— Currents and Floating Mines, 129.
Ogilvie, A., Geography of Macedonia, 126.
Ordnance Survey, Scotland, Publications, 212, 287.
Orissa, Map, 214.
Orkney and Shetland (Heddle and Mainland), 211.
Ostrich, The African, J. E. Duerden, 51.
Ostrup, E., Botany of Iceland, *supp.*, 2.
Oudh, Administration Report, 212.
—— District Gazette, *supp.*, 2.

Pacific Islands, Loyalty Group (Hadfield), *supp.*, 4.
—— Stevenson's Germany: The Case against Germany in the (Fletcher), *rev.*, 283.
—— White Shadows in the South Seas (O'Brien), 284.
Palestine (Jastrow), 211.
—— A Pilgrim in (Finley), *rev.*, 135.
—— Allenby's Final Triumph (Massey), *rev.*, *supp.*, 2.
—— England and (Sidebotham), *rev.*, 65.
—— with Notebook and Camera. In and around (Forder), *rev.*, 64.
—— With our Army in (Bluett), *rev.*, 279.
Papua, Annual Report, *supp.*, 4.
Paraguay (Bland), *rev.*, 282.
—— In the Wilds of South America (Miller), *rev.*, 137.
Parfit, J. T., Marvellous Mesopotamia, 211.
Paris, Industry of, M. Poëte, *supp.*, 7.
Parrott, Sir E., New Age Encyclopædia, *supp.*, 5.
Peace Handbooks (Protheroe), *supp.*, 5.
Peacock, N., The Russian Almanack 1919, *rev.*, 59.
Peake, H., and the suggested modification of the English counties, 36.
Pearce, Major F. B., Zanzibar, *rev.*, 202.
Persia, From Persian Uplands (Hale), *rev.*, 278.
—— **Travel Memories. By Lieut.-Col. A. C. Yate, 161.**
Peru, In the Wilds of South America (Miller), *rev.*, 137.
Philby, H. St. John, Awarded R.G.S. Founder's Gold Medal, 129.
Philip, G. S., Map-Reading Made Easy, *rev.*, 210.
Philip's Art Pictures for Schools, *rev.*, 144.
—— Authentic Series—Europe, 214.
—— New School Atlas of Comparative Geography, 216.
—— Smaller Schoolroom Map of Europe, 214.
Pillai, Diary of Ananda Ranga, *supp.*, 5.
Pimienta, R., on South-West Africa, 53.
**Place-Names of Canada. By R. Douglas, 154.**
Plants, Geography of (Hardy), *rev.*, 287.
Poëte, M., Industry of Paris, *supp.*, 7.
**Poland, The Ethnic versus the Economic Frontiers of. By M. A. Czaplicka, 10.**
—— the Unknown (Waliszewski), *rev.*, 61.

Pollard, S., In Unknown China, *rev.*, *supp.*, 2.
Polynesian Islands (O'Brien), 284.
Poole, E., The Village: Russian Impressions, *rev.*, 62.
Porsild, M. P., Proposed Danish Arctic Expedition, 267.
Prothero, Sir G. W., Peace Handbook, *supp.*, 5.
Ptolemy's Maps of Northern Europe (Schütte), *rev.*, 135.
Punjab, Administration Report, 212.
—— Map, 215.
Pyrenees, Romantic Roussillon (Savory), *rev.*, 63.

Raasay, Geological Memoir (Lee), *supp.*, 1.
Raeburn, H., Mountaineering Art, *supp.*, 5.
Rainfall, British, 1918 (Mill), *rev.*, 70.
—— in Relation to Configuration (Salter), *rev.*, 70.
Reeves, E. A., on Atmospheric Electricity, 38.
Rhine, Beyond the (Henry), *rev.*, 60.
—— Navigation, 124.
Rhodes, O. H. T., Rishbeth, 32.
Rhodesia, In Wild (Masters), *supp.*, 3.
Rhone, Utilisation of the, P. Clerget, 48.
Roe, A. S., Chance and Change in China, *rev.*, 201.
Rome, A Month in (Maurel), *rev.*, 133.
**Richardson, R., The Late Lord Guthrie, 185, 264.**
Rishbeth, O. H. T., on the Dodecanese, 31.
Ritchie, J., Animal Life in Scotland, *rev.*, *supp.*, 1.
**Rivers of Europe, International. By Prof. L. W. Lyde, 73.**
Rothfeld, C., Women of India, *supp.*, 2.
Roussillon, Romantic (Savory), *rev.*, 63.
Routledge, S., The Mystery of Easter Island, *rev.*, 141.
Royal Geographical Society Awards, 129.
R.S.G.S., Medal Awards, 44.
Royal Scottish Museum, Report, *supp.*, 5.
Russia, Bolshevist (Antonelli), *rev.*, 272.
—— in Rule and Misrule (Balard), *rev.*, 134.
—— The Russian Almanack 1919 (Peacock), *rev.*, 59.
—— the Spirit of (Masaryk), *rev.*, 62.
—— The Village: Russian Impressions (Poole), *rev.*, 62.

Saar Coalfield Output, 220.
Sahara, Contrasts between the Algerian and Egyptian, E. J. Gautier, 126.
St. Helena, Annual Report, *supp.*, 5.
Saint Vincent, Alone in the Caribbean, (Fenger), *rev.*, 6, 7.
Salter, C. S., British Rainfall 1918, *rev.*, 70.
**Salvesen, T. E., Falkland Islands, Methods of Industry, 267.**
Samarkand, E. Christie, 89.
Samoa, Stevenson's Germany (Fletcher), *rev.*, 283.
Sapper, K., Eruption of Katla, Iceland, 265.
Saskatchewan, Homestead Map, 288.
Savory, I., Romantic Roussillon, *rev.*, 63.
**Scandinavia. Primæval Astronomy in. By G. Schütte, 244.**
Schütte, G., Hjemligt Hedenskab, *rev.*, 139, 189.
—— **G., Primæval Astronomy in Scandinavia, 244.**
—— G., Ptolemy's Maps of Northern Europe, *rev.*, 135.
Scotland, Admiralty Charts, Publications, 212, 287.
—— Animal Life in, (Ritchie), *supp.*, 1.
—— Coal production, 233.
—— Contour Road Map (Bartholomew), 288.
—— Geographical Survey, *supp.*, 1.
—— Half-inch Map (Bartholomew), 214, 288.
—— Mineral Resources, 130.
—— Motor Cycle Route Book (Harper), 211.
—— New Geography (Newbigin), *rev.*, 209.
—— Ordnance Survey, Publications, 212, 287.
—— The Atlas Geographies (Muir), *supp.*, 6.
—— **The "Mounth" Passes over the Grampians. By G. M. Fraser, 116, 169.**
Sea and Land (Hilton-Young), 211.
Sederholm, J. J., The Aland Question, *supp.*, 2.
Seignobos, M. Ch., Future of Italy, 47.
Semple, E. C., Ancient Piedmont Route of Northern Mesopotamia, 49.
—— —— on Cyprus, 51.
Serbia, Serbian Life (Davies), *rev.*, 61.
Seton-Watson, R. W., Czecho-Slovak Republic, 211.
—— —— Europe in the Melting-pot, *rev.*, 60.
—— —— Future of Bohemia, 211.
Shackleton, Sir E., South: The Story of Shackleton's Last Expedition, 1914-17, *rev.*, 39.
Sharp, A. H., From Cape to Cairo, *rev.*, 137.
Sharpe, Sir A., on the Colonisation of Africa, 38.
—— —— Railway communications with Central Africa, 131.
Shaw, Sir N., The Relation of Wind to the Distribution of Barometric Pressure, *rev.*, 143.
Sheffield (Fletcher), *rev.*, 64.
Shetland, Orkney and (Heddle and Mainland), 211.
Siam, Peace Handbook (Prothero), *supp.*, 2.

Sidebotham, H., England and Palestine, *rev.*, 65.
Sierra Leone, Annual Report, *supp.*, 5.
Silesia, Upper, The Plebiscite Area of, A. R. Hinks, 125.
Simpson, C. T., In the Lower Florida Wilds, *supp.*, 3.
Senil, Gazetteer, *supp.*, 2.
Sleswig Plebiscite Area, P. Langhans, 266.
Slovakia, Racial Differences, 225.
Skinner, R. S., From the Castle to Holyrood, *supp.*, 1.
Skye, Geological Memoir (Lee), *supp.*, 1.
**Smith, Dr. George, 187.**
Spitsbergen, Ceded to Norway, 111, 265.
—— Coal Resources, B. Högbom, 6.
—— Coalfields of, 114.
—— **in 1919**, *rev.*, 1.
—— Ratification of Treaty, 265.
—— **Recent Developments in. By R. N. Rudmose Brown, 111.**
Statesman's Year Book (Keltie), *supp.*, 5.
Steel-Maitland, Sir A., on the present economic conditions of the country, 46.
Steensby, Prof. H. B., on the Norseman's Route from Greenland to Wineland, 53.
Stow, V. A. S., The Motherland in Pictures, *supp.*, 6.
Strasburg, Trade Connections, 123.
Sugar Supply, The War and the World's, 56.
Surveying Instruments and Methods, Technic of (Webb and Fish), *rev.*, 210.
Sussex, Seaward (Holmes), 211; *rev.*, 269.
Sutherland, (Campbell), *supp.*, 1.
Sweden, Svenska, Turistföreningens Arsskrift, 212.
Sykes, Ella and Brig.-General Sir P., Through Deserts and Oases of Central Asia, *rev.*, 200.
Symi, O. H. T. Rishbeth, 33.
Syria (Jastrow), 211.

Tanganyika Territory, E. Obst, *supp.*, 7.
—— —— New Frontiers, 128.
—— —— The (Joelson), *supp.*, 3.
—— —— Three Years War (Buchanan), *rev.*, 66.
Taylor, G., Australian Meteorology, 211.
Thomas, Captain H., on Aeroplane Photo Surveys in the East, 37.
Thompson, R. C., on his Explorations in Lower Mesopotamia, 30.
*Times* Survey Atlas of the World (Bartholomew), *rev.*, 180, 216, 288.
Togoland (Calvert), *rev.*, 66.
Tournour, G., Sinhalese Chronicle, 16.
Towler, Colonel, on some of the conditions governing the selection of an Aerial Route, 37.
Townshend, Sir C., My Campaign in Mesopotamia, *rev.*, 279.
Trade of the United Kingdom and Foreign Countries, Report, *supp.*, 2.
**Travel Memories. By Lt.-Col. A. C. Yate, 161.**
—— Modern (Davidson), *supp.*, 5.
Trevor-Battye, Mr., on Crete, 38.
—— —— on the Static Power of Melting Ice, 38.
Turkestan, Chinese, Through Deserts and Oases (Sykes), *rev.*, 200.
Turkey (Jastrow), 211.
—— Day of the Crescent (Hubbard), 211, *rev.*, 274.
—— Forty-four Months in Germany and, (Dyal), *rev.*, 208.
—— The Future of, H. Charles Woods, 31.
Turkey in Asia, Allenby's Final Triumph, (Massey), *rev.*, *supp.*, 2.
—— —— Peace Handbook (Prothero), *supp.*, 2.
—— —— Road to En-dor (Jones), *rev.*, 198.
—— —— Turks in Europe (Allen), *rev.*, 135.
Twells, J. H., In the Prison City: Brussels, *rev.*, 132.

Uganda, Handbook of (Wallis), 212.
—— The "Red Book" 1919, *rev.*, 67.
United States. A Summer Tour through the Textile Districts (Barker), *supp.*, 3.
—— —— Cape Cod and the Old Colony (Brigham), *supp.*, 3.
—— —— Coal Production, 233.
—— —— Geologic Atlas, 216.
—— —— Histoire des États-Unis de 1787 à 1917 (Weill), *rev.*, 138.
—— —— In the Lower Florida Wilds (Simpson), *supp.*, 3.
—— —— Industrial Developments in the, G. D. Hubbard, *supp.*, 8.
—— —— Seeing the Far West (Faris), *supp.*, 3.
Uruguay (Bland), *rev.*, 282.

Vahl, M., Vegetation of South America, *supp.*, 8.
Venezuela, In the Wilds of South America (Muller), *rev.*, 137.

Wagner, E. R., A Travers la Forêt Brézilienne, *rev.*, 205.
Wales. Motor Cycle Route Book (Harper), 211.
—— North, Holiday Rambles in (Bagley), 212; *rev.*, 273.
Waliszewski, K., Poland the Unknown, *rev.*, 61.
Wallis, B. C., The British Empire, *rev.*, 209.
—— H. R., Handbook of Uganda, 212.
Walters, E. M., the New Era Globes, *rev.*, 209.
War, The, and the World's Sugar Supply, 56.
—— —— Problèmes Economiques d'après Guerre (Launay), *rev.*, 133.

War, The, The Economic Factor, C. A. Burky, 55.
Watson, Prof. J. W., Lecture on the Gael in the Lothians, 183.
Webb, W. L., Technic of Surveying Instruments and Methods, *rev.*, 210.
Weill, G., Histoire des Etats-Unis de 1787 à 1917, *rev.*, 138.
West Indies, Camphor-Growing, Prof. Carmody, 194.
Westminster, Site of, Miss Rodwell Jones, 37.
Whitaker's Almanack, *rev.*, 143, 212.
**Whitehouse, W. E., Statistical Analysis of a Geography Examination, 21.**
Wigtownshire (Learmonth), *rev.*, *supp.*, 1.
Wijesinha, L. C., Sinhalese Chronicle, 16.
Williamson, G. C., George, Third Earl of Cumberland, His Life and His Voyages, *supp.*, 4.
Wilson, R., The Progress Geography, *supp.*, 6.
Winchester, L., Teaching of Geography to Children, *rev.*, 286.
Wineland, Norseman's Route from Greenland to, H. P. Steensby, 53.
—— Position of, Dr. F. Nansen, 53.
Winterbotham, Lt.-Col. H. S. L., awarded R.G.S. Victoria Medal, 129.
—— —— on Air Photography, 37.
Woods, H. Charles, on the Future of Turkey, 31.
Wordie, J. M., awarded R.G.S. Back Grant, 129.

**Yate, Lt.-Col. A. C., Baku and the Caspian, 254.**
—— —— —— **Travel Memories, 161.**
Year Books, Canada, *supp.*, 3.
—— —— Statesman's, *supp.*, 5.
—— —— The New Hazell Annual and Almanack, *rev.*, 143.
—— —— Whitaker's Almanack, *rev.*, 143, 212.
Young, C., Human Geographies, *rev.*, 72.
—— G., The New Germany, *rev.*, 195.
Ypres, Pilgrim's Guide, *rev.*, *supp.*, 1.

Zanzibar (Pearce), *rev.*, 202.

## ILLUSTRATIONS.

Asia.

| | PAGE |
|---|---|
| In the ruined City of Anuradhapura, | 17 |
| Sigiriya from the north side, | 18 |
| Nearer view of a moonstone threshold at Anuradhapura, | 19 |
| The Lotus Bath, | 20 |
| Camels on the March in Turkestan, | 86 |
| Method of driving high-wheeled carts in Samarkand district, | 87 |
| The Mosque of Sultan Sanjar, Old Merv, | 88 |
| The Tower of Minar Katan, Bokhara, | 89 |
| The Tomb of Tamerlane, Samarkand, | 91 |
| Dome of Mosque at Turkestan, | 92 |
| Artillery Square, Teheran, 1881, | 162 |
| Bridge near Resht on the road to Kazvin, 1881, | 165 |
| Kudum, the first post-station out of Resht, | 166 |
| Shah's residence at Enzeli on the Caspian, 1881, | 168 |
| The Harbour of Uzun-ada, | 260 |
| The Harbour of Krasnovodsk, | 263 |

Africa.

| | PAGE |
|---|---|
| Hammock Bridge in the Bush-belt, | 149 |
| German Fort at Bamenda, | 150 |
| The Chief of Bali, | 152 |

Arctic.

| | PAGE |
|---|---|
| The Head of Klaas Billen Bay, | 8 |
| Longyear City and Advent Bay, | 8 |

Antarctic.

| | PAGE |
|---|---|
| Caird Coast, | 41 |
| The End of the *Endurance*, | 43 |

General.

| | PAGE |
|---|---|
| Danish Rock Carvings, dating from about 1000 B.C., | 140 |
| Rock Carving from Bohuslän (after Baltzer), | 246 |

| | PAGE |
|---|---|
| Constellations of October 19th at Bohuslän, | 247 |
| Rock Carvings from parish of Tanum (after Baltzer) | 248 |
| Constellations about the Vernal Equinox, | 249 |
| Fragment of Rock Carving from parish of Tanum (after Baltzer), | 250 |
| Constellations about the Summer Solstice, | 250 |
| The Chaldæan Zodiac (according to A. Jeremias), | 250 |
| Rock Carvings from Tanum (after Baltzer), | 250 |
| Auriga and Cassiopeia, | 250 |
| Fragments of Rock Carvings from the parish of Tanum (after Baltzer), | 251 |
| The Milky Way, | 251 |
| The Venslev Stone, | 252 |
| Constellations adjacent to North Star, | 252 |
| The Dalby Stone, | 253 |
| Constellations, *c.* May 20 | 253 |


## MAPS AND DIAGRAMS.

### EUROPE.


| | PAGE |
|---|---|
| Roads and Passes over the Eastern Grampians, | 117 |


### ASIA.


| | PAGE |
|---|---|
| Sketch-map to show ruins on the Tigris around Samarra, as seen from the air, | 100 |
| Part of the northern quarter of the ruined city of Eski Baghdad, | 101 |
| Central part of Baghdad with public gardens, | 103 |
| Plan of detached forts of ancient Baghdad, | 104 |
| Plan of ancient irrigation system, | 104 |
| Air survey of ancient canal regulator system, | 106 |


### AFRICA.


| | PAGE |
|---|---|
| Route from Ikom on Cross River to Bamenda, Cameroons, | 147 |


### AMERICA.


| | PAGE |
|---|---|
| The Northern Appalachian Coalfield, | 233 |
| The Position of Pittsburg, | 235 |
| The Position of the Pittsburg coalbed, | 235 |
| Diagram to show methods of mining, | 235 |
| The Connellsville Outlier. The streams in this diagram are north bank tributaries of the Youghiogheny River near Connellsville, | 235 |
| The Coalfields of SE. Pennsylvania and West Virginia, | 237 |
| The Connellsville Coking Area, | 240 |


### ARCTIC.


| | PAGE |
|---|---|
| Spitsbergen, Map of Klaas Billen Bay and Temple Bay, | 111 |


### GENERAL.


| | PAGE |
|---|---|
| Graphs illustrating statistical analysis of a Geography Examination, | 24-25 |


END OF VOLUME XXXVI.

# NEW BOOKS.

**A selection of the books in this list will be noticed in the Magazine at a later date.**

## EUROPE.

ANIMAL LIFE IN SCOTLAND: A Study in Faunal Evolution. By JAMES RITCHIE, M.A., D.Sc. (Aberdeen), F.R.S.E. 8vo. Pp. xvi., 550. *Cambridge: University Press.* 1920. Price 28s. net.

Dr. Ritchie's detailed study of the changes which have occurred in the fauna of Scotland in historic times will be found of great interest to the geographer.

FROM THE CASTLE TO HOLYROOD: "The Royal Mile." By ROBERT T. SKINNER, M.A., F.R.S.E. Pp. 43. *Edinburgh: Robert Grant & Son,* 1920. Price 2s.

CAITHNESS AND SUTHERLAND. By H. F. CAMPBELL, M.A., B.L., F.R.S.G.S. 8vo. Pp. ix., 168. *Cambridge: University Press,* 1920. Price 4s. 6d. net.

IONA: A History of the Island. By F. M. M'NEILL, M.A. 8vo. Pp. 105. *Glasgow: Blackie & Son, Ltd.,* 1920. Price 3s. 6d. net.

Mr M'Neill studies the "illustrious isle which was once the luminary of the Caledonian regions," as Dr Johnston called it, under its various aspects. There are 2 maps and good illustrations.

KIRKCUDBRIGHTSHIRE AND WIGTOWNSHIRE. By WILLIAM LEARMONTH, F.R.P.S., F.B.S.E. 8vo. Pp. ix., 149. *Cambridge: University Press,* 1920. Price 4s. 6d. net.

MEMOIRS OF THE GEOLOGICAL SURVEY, SCOTLAND: The Mesozoic Rocks of Applecross, Raasay, and North-East Skye. By G. W. LEE, D.Sc., Edinburgh. 1920. Price 6s. net.

LINDISFARNE OR HOLY ISLAND: Its Cathedral, Priory and Castle, A.D. 635-1920. By ANDERSON GRAHAM. Pp. 55. *London: Country Life, Ltd.,* 1920.

CARDIFF AND THE NEIGHBOURHOOD: British Association Handbook (with map). Edited by HOWARD M. HALLETT, F.E.S. Pp. 314. Cardiff, 1920.

THE BLUE GUIDES: Belgium and the Western Front; British and American. Edited by FINDLAY MUIRHEAD, M.A., F.R.G.S. 60 maps and plans. 8vo. Pp. lxxx 368. *London: Macmillan & Co., Ltd.,* 1920. Price 15s. net.

This is the third volume of this new series which we have received, the others being *England* and *London*, and is of a very convenient size for the pocket, while being at the same time well and clearly printed. In all cases the real test of the value of a guide-book is its use in actual travel, a fact which renders reviewing in the ordinary sense difficult, but we may note that the three books appear to be precise, accurate, carefully edited, and neglectful of no important association, historical or literary, connected with the places described. This is especially noticeable in the *Belgium* volume. All travellers should take careful note of the appearance of the series.

THE PILGRIM'S GUIDE BOOK TO THE YPRES SALIENT. 8vo. Pp. 91. *London: Herbert Reiach, Ltd.*, 1920. Price 3s. 6d. net.

This guide has been compiled and written entirely by ex-service men, for the use of visitors to the graves and battlefields. Any profits are to be devoted to the maintenance of Talbot House in London.

THE ALAND QUESTION FROM A SWEDISH FINLANDER'S POINT OF VIEW. By J. J. Sederholm. Pp. 58. Helsingfors, 1920.

THE BOTANY OF ICELAND. Vol. II. Part I., Fresh-Water Diatoms from Iceland. By Ernest Ostrup. With 5 plates. Copenhagen, 1920.

## ASIA.

ALLENBY'S FINAL TRIUMPH. By W. T. Massey. With illustrations and maps. 8vo. Pp. x., 347. *London: Constable & Co.*, 1920. Price 21s.

A very attractive account, illustrated by maps and views, by the official correspondent of the London newspapers with the Egyptian Expeditionary Force, of the fighting over Jordan and the final advance from Judea to Damascus and Aleppo in 1918.

IN UNKNOWN CHINA. By S. Pollard. Illustrations and 3 maps. 8vo. Pp. 324. Price 25s. net.

A well-illustrated description of travels and adventures among the Nosu tribes of Western China.

MODERN JAPAN: Its Political, Military and Industrial Organization. By William Montgomery McGovern, Ph.D. 8vo. Pp. 280. *London: T. Fisher Unwin, Ltd.*, 1920. Price 15s. net.

Mr McGovern is an American who, after tramping through New Zealand and visiting Australia, Fiji, and Samoa, spent twenty-six months in Japan, where he lived among the people, and taught English in the Kobe Higher Commercial School. This book records his impressions.

WOMEN OF INDIA. By Otto Rothfeld, F.R.G.S., I.C.S. Illustrated by M. V. Dhurandhar. 8vo. Pp. viii., 222. *London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd.*, 1920.

STATEMENT EXHIBITING THE MORAL AND MATERIAL PROGRESS AND CONDITION OF INDIA DURING THE YEAR 1919. 55th number. London, 1920. Price 3s. 6d.

ANNUAL STATEMENT OF THE TRADE OF THE U.K. WITH FOREIGN COUNTRIES AND BRITISH POSSESSIONS, 1919. Vol. I. London, 1920. Price 10s.

GAZETTEER OF THE PROVINCE OF SIND: Vols. I to VII. Bombay, 1919.

DISTRICT GAZETTEERS OF THE UNITED PROVINCES OF AGRA AND OUDH: Saharanpur. Allahabad, 1917.

PEACE HANDBOOKS. Vol X.—Mohammedanism: Turkey in Asia (1).
Vol. XI.—Turkey in Asia (2).
Vol. XII.—China, Japan, Siam.

Prepared under the General Editorship of Sir George W. Prothero, late Director of the Historical Section of the Foreign Office. London, 1920.

## AFRICA.

L'ALGERIE ET LA METROPOLE. Avec 4 graphiques. Par E. F. Gautier. 8vo. Pp. 263. *Paris: Payot et Cie*, 1920. Prix 5 francs.

This close study of the relation of the Mother Country to Algeria, in theory

and in fact, has a wider interest than its title would suggest, for it raises a number of fundamental questions in connection with the relation of dependencies and dominions to the Central Government. The history, for example, of the short railway line from Tiaret to Relizane, and the author's painstaking analysis of the causes which led the Central Authority to go in direct opposition to local knowledge and local wishes, form a chapter of great importance, and the study of the native question is thoughtful and sober.

AMONG THE IBOS OF NIGERIA. By G. T. Basden, M.A., F.R.G.S. 8vo. Pp. 306. 32 illustrations and map. Price 25s. net.

A detailed account of a little-known African tribe of one who has lived among them for a prolonged period.

COLLOQUIAL ARABIC: Shuwa Dialect of Bornu, Nigeria and of the Region of Lake Chad. By G. J. Letham, M.A., LL.B. 8vo. Pp. xv., 487. *London: Office of the Crown Agents for the Colonies*, 1920.

THE GLAMOUR OF PROSPECTING: Wanderings of a South African Prospector in search of Copper, Gold, Emeralds and Diamonds. By Lieut. Fred. C. Cornell, O.B.E. Illustrated. 8vo. Pp. 346. *London: T. Fisher Unwin*, 1920. Price 21s. net.

IN WILD RHODESIA. By Henry Masters and Walter E. Masters, M.D., D.D. 8vo. Pp. 246. *London: Francis Griffiths*, 1920. Price 6s. net.

An account of adventure, sport, missionary enterprise and problems in Northern Rhodesia.

THE TANGANYIKA TERRITORY (formerly German East Africa): Characteristics and Potentialities. By F. S. Joelson. With 17 illustrations and a map. 8vo. Pp. 256. *London: T. Fisher Unwin*, 1920. Price 21s. net.

## AMERICA.

CAPE COD AND THE OLD COLONY. By Albert Perry Brigham, Sc.D. With 35 illustrations and maps. 8vo. Pp. 295. *New York: G. P. Putnam's Sons*, 1920. Price 14s.

IN LOWER FLORIDA WILDS: A Naturalist's Observations on the Life, Physical Geography and Geology of the more tropical part of the State. By Charles Torrey Simpson. With 64 illustrations and 2 maps. 8vo. Pp. 419. *New York: G. P. Putnam's Sons*, 1920. Price 14s.

SEEING THE FAR WEST. By John T. Faris. With 113 illustrations and 2 maps. 8vo. Pp. 300. *London: J. B. Lippincott Co.*, 1920. Price 25s. net.

A SUMMER TOUR (1919) THROUGH THE TEXTILE DISTRICTS OF CANADA AND THE UNITED STATES. By Aldred F. Barker, M.Sc. 8vo. Pp. xi., 197. Leeds, 1920.

THE CANADA YEAR BOOK, 1919. Published by Authority of the Right Hon. Sir George E. Foster, G.C.M.G., M.P. 8vo. Pp. xvi., 697. Ottawa, 1920.

THROUGH BRITISH GUIANA TO THE SUMMIT OF RORAIMA. By Mrs Cecil Clementi, M.B.E. 8vo. Pp. 236. *London: T. Fisher Unwin*, 1920. Price 12s. 6d. net.

Mrs Clementi is the first woman who has climbed Mount Roraima, and describes fully her journey thither, the ascent and the return.

LA REPUBLIQUE ARGENTINE. By M. Pierre Denis. 8vo. Pp. 300. *Paris: Librairie Armand Colin*, 1920. Prix 14 fr.

An account of the economic development of the Republic.

REPORT OF THE INTERDEPARTMENTAL COMMITTEE ON RESEARCH AND DEVELOPMENT IN THE DEPENDENCIES OF THE FALKLAND ISLANDS WITH APPENDICES, MAPS, Etc. London, 1920. Price 2s. 6d. net.

## AUSTRALASIA AND PACIFIC ISLANDS.

ISLANDS FAR AWAY: Fiji Pictures with Pen and Brush. By Agnes Gardner King; with an Introduction by Sir Everard im Thurn. Illustrated. 8vo. Pp. 283. *London: Sifton Praed & Co., Ltd.*, 1920. Price 18s.

Miss King spent some months in the Fiji Islands in 1912, and this book, which is illustrated by many of her own drawings, gives an account of her experiences, and of her sympathetic relations with the natives. There is an Introduction by Sir Everard im Thurn.

AMONG THE NATIVES OF THE LOYALTY GROUP. By E. Hadfield. 8vo. Pp. xix., 316. *London: Macmillan & Co.*, 1920. Price 12s. 6d. net.

Mrs Hadfield lives on the island of Lifu, but is in the habit of spending a month each year at Uvea. Her book is an account of the customs and folk-lore of the islanders, based upon her personal observations and on conversations with the natives. It is admirably illustrated.

THE OFFICIAL YEAR BOOK OF NEW SOUTH WALES, 1918. N.S.W., 1920.

POCKET YEAR BOOK OF WESTERN AUSTRALIA, 1920. By S. Bennett, F.I.A. Perth, 1920.

PAPUA: ANNUAL REPORT FOR THE YEAR 1918-19. Australia, 1920.

## POLAR REGIONS.

REPORT ON THE SCIENTIFIC RESULTS OF THE VOYAGE OF S.Y. "SCOTIA," 1902-04. Vol. VII.—Zoology. Pp. 331. *Edinburgh: Scottish Oceanographical Laboratory*, 1920. Price 50s.

## BIOGRAPHY.

THE LIFE AND EXPLORATIONS OF FREDERICK STANLEY ARNOT. By Ernest Baker. 8vo. Pp. 334. Price 12s. 6d. net.

The authorised biography of an African missionary and explorer.

FROM MIDSHIPMAN TO REAR-ADMIRAL. By Rear-Admiral Bradley A. Fiske, U.S. Navy. Illustrated. 8vo. Pp. 694. *London: T. Werner Laurie, Ltd.*, 1920. Price 32s. net.

A lively account of the adventures and experiences of the American naval inventor, with special emphasis on the inventions and improvements associated with his name, but containing some notes on travel in various parts of the world.

GEORGE, THIRD EARL OF CUMBERLAND (1558-1605), HIS LIFE AND HIS VOYAGES: A Study from Original Documents. By Dr G. C. Williamson. *Cambridge: University Press*, 1920. Price 25s.

A volume of much antiquarian interest, based on recently discovered letters from the Earl and from his wife and on other documents, all found at Skipton and Appleby Castles, and throwing much light on the conditions under which

sea-fighting and sea-voyages were carried on in the days of Elizabeth. There are a number of plates, including one showing a curious map of the successful attack on Porto Rico in 1598.

## GENERAL.

MODERN TRAVEL: A Record of Exploration, Travel, Adventure and Sport in all parts of the World during the last forty years, derived from personal accounts by the travellers. By NORMAN J. DAVIDSON, B.A. (Oxon.) 8vo. Pp. 320. *London: Seeley Service & Co., Ltd.*, 1921. Price 25s. net.

As the lengthy title quoted indicates, this book is a compilation, based upon the accounts given by various authors of their experiences in different parts of the world. The themes are very diverse, but the books summarised are mostly fairly familiar.

THE CHRONICLE OF MUNTANER. Vol. I., 2nd Series No. 47. 8vo. Pp. xc., 370. *London: The Hakluyt Society*, 1920.

MOUNTAINEERING ART. By HAROLD RAEBURN. With diagrams and illustrations. 8vo. Pp. xii., 274. *London: T. Fisher Unwin*, 1920. Price 16s. net.

A beautifully illustrated account of the science and art of mountain-climbing, by one who has a detailed acquaintance with the hills of Scotland and the Lake District at all seasons of the year, and has climbed extensively in the Alps and the Caucasus.

AFTERMATH: A Geographical Study of the Peace Terms. By MARION I. NEWBIGIN, D.Sc. (Lond.) 8vo. Pp. 128. *Edinburgh: W. & A. K. Johnston, Ltd.*, 1920. Price 3s. 6d. net.

A summary account of the changes in the map of Europe which result from the various Peace Treaties, with notes on the economic and other problems which arise out of these changes.

THE NEW AGE ENCYCLOPÆDIA. Vols. I. to IV. Edited by Sir EDWARD PARROTT, M.A., LL.D. *Edinburgh: Thomas Nelson & Sons, Ltd.*, 1920. Price 3s. 6d.

This is to be completed in ten volumes, issued fortnightly, the volumes being neat and compact and well bound. The whole will thus form a convenient and inexpensive book of reference, giving adequate descriptions of the events of the last few years, necessarily omitted from the larger encyclopædias, which are too costly to be brought up to date except at long intervals.

THE DIARY OF ANANDA RANGA PILLAI. Translated from the Tamil by order of the Government of Madras. Vol. VII. Demy 8vo. Pp. xxiv., 465. *Madras: Government Press*, 1920. Price 4s. 6d.

PEACE HANDBOOKS. Vol. XXIV.—Congresses: German Opinion.
Vol. XXV.—Indemnities, Plebiscites, etc.

Prepared under the General Editorship of Sir GEORGE W. PROTHERO, late Director of the Historical Sections of the Foreign Office. London, 1920. Price 10s. 6d. and 9s.

THE STATESMAN'S YEAR-BOOK FOR 1920. Edited by Sir JOHN SCOTT KELTIE, LL.D., and M. EPSTEIN, M.A., Ph.D. *London: Macmillan & Co., Ltd.*, 1920.

CALENDARIO ATLANTE DE AGOSTINI; ANNO XVII. Novaro, 1920.

REPORT FOR THE YEAR 1919-20. By the Director on the Royal Scottish Museum, Edinburgh. London, 1920.

STATISTICAL ABSTRACT FOR THE SEVERAL BRITISH OVERSEA DOMINIONS AND PROTECTORATES FROM 1903 TO 1917. London, 1920. Price 3s. 6d. net.

EDINBURGH UNIVERSITY CALENDAR, 1920-1921. Pp. 978. *Edinburgh*: *James Thin*, 1920.

A NEW PRINCIPLE OF INTERNATIONAL LAW. By A. M. M. Montijn, LL.D. Pp. 56. The Hague, 1920.

MALAY SELF-TAUGHT: By the Natural Method with Phonetic Pronunciation (Thimm's System). By Abdul Majid. 8vo. Pp. 151. *London*: *E. Marlborough & Co.*, 1920. Price 4s. net.

COLONIAL REPORTS—ANNUAL. Nigeria (1030), Leeward Islands (1031), Sierra Leone (1032), Gambia (1034), St. Helena (1039), Gilbert and Ellice Islands (1038). London, 1920.

## EDUCATIONAL.

FIRST LESSONS IN GEOGRAPHY. By E. Marsden, B.A., F.R.H.S., and T. Alford Smith, B.A. (Lond.) With maps and illustrations. 8vo. Pp. vi., 185. *London*: *Macmillan & Co.*, 1920. Price 3s. 6d.

AN INTRODUCTION TO PHYSICAL GEOGRAPHY. By Marion I. Newbigin, D.Sc. (Lond.) With numerous illustrations and maps. (Second edition). 8vo. Pp. xi., 336. *London*: *J. M. Dent & Sons, Ltd.*, 1919. Price 3s. 6d.

GEOGRAPHY BY DISCOVERY: A Practical Geography based on Explorers' Narratives. By J. Jones. 8vo. Pp. vi., 160. *London*: *Sidgwick and Jackson, Ltd.*, 1920. Price 3s. 6d. net

A useful little book containing extracts from the writings of such travellers as Marco Polo, Francis Drake, Martin Frobisher, and so on.

AN ADVANCED PRACTICAL PHYSICAL GEOGRAPHY FOR PUBLIC AND SECONDARY SCHOOLS. By Capt. Frederick Morrow, M.C., B.A., F.R.G.S., and Ernest Lambert, Inter. B.A., L.C.P. 8vo. Pp. xxii., 610. *London*: *Meiklejohn and Son, Ltd.*, 1920. Price 7s. 6d. net.

HISTORICAL GEOGRAPHY OF BRITAIN AND THE BRITISH EMPIRE. Book II. The Expansion and Consolidation of the British Empire. By Thomas Franklin, A.C.P., A.R.S.G.S. 8vo. Pp. 159. *Edinburgh*: *W. & A. K. Johnston*, 1920. Price 2s.

THE ATLAS GEOGRAPHIES, PREPARATORY: SCOTLAND. By T. S. Muir. Pp. 32. *Edinburgh*: *W. & A. K. Johnston*, 1920. Price 1s. net.

THE ATLAS GEOGRAPHIES: PART III: Senior Geography. No. 2—Europe. By Thomas Franklin. Pp. 148. *Edinburgh*: *W. & A. K. Johnston, Ltd.*, 1920. Price 7s. 6d. net.

TOPOGRAPHIC MAPS AND SKETCH MAPPING. By J. K. Finch, C.E., A.M. 1st Ed. 8vo. Pp. 186. *New York*: *John Wiley & Sons, Inc.*, 1920. Price 13s. 6d. net.

Another example of the numerous text-books which have arisen from teaching experience gained during the War with army training corps. The author is of opinion that anyone with an ordinary education and interest can speedily learn to use topographic maps and even to do sketch-mapping, and sets forward the methods he has employed with his own classes.

ORDNANCE SURVEY MAPS: Their Meaning and Use. With descriptions of typical 1-inch sheets. By MARION I. NEWBIGIN, D.Sc. (Lond.) 2nd Edition. Cr. 8vo. Pp. 128. *Edinburgh: W. & A. K. Johnston, Ltd.*, 1920. Price 2s. net.

THE MOTHERLAND IN PICTURES. By V. A. S. STOW, M.A., and H. CLIVE BARNARD, M.A., B. Litt. Cr. 4to. Pp. 80. *London: A. & C. Black, Ltd.*, 1920. Price 5s.

THE PROGRESS GEOGRAPHY. Edited by RICHARD WILSON, B.A. (Lond.), D.Litt. (Edin.) Stage I. and Stage II., Pictures and Conversations. 2 Vols. Cr. 8vo. Pp. 144 and 176. *London: Macmillan & Co., Ltd.*, 1920. Price 2s. 6d. and 3s.

## GEOGRAPHICAL NOTES.

### EUROPE.

DEVELOPMENT OF INDUSTRY IN PARIS.—In *La Vie Urbaine*, a recent addition to our exchange list, a group of articles dealing with the city of Paris appears in the issue for December, 1919. One of these discusses the growth of industry in Paris, from the year 1791 onwards, and more especially the influence of the development of the cotton industry in Lancashire. The paper is of value especially in that it looks at the Industrial Revolution from an unfamiliar point of view, for British historians and economists are inclined to lay especial emphasis on events in this country, to the neglect of the Continent. In view also of the usual statement that it was the Continental absorption in the Revolutionary and Napoleonic wars which permitted industry here to develop so rapidly, it is interesting to note that M. Marcel Poëte, the author of the article, considers that these wars, by cutting off British goods, promoted the development of industry alike in Paris and in France.

### ASIA.

GREAT WALL OF CHINA.—In *The Geographical Review* for April-June last there appears a long and admirably illustrated article by Mr F. G. Clapp on this subject, based on journeys undertaken during the year 1914. Apart from the general description of the country traversed by the Wall, the article is of interest in the account it gives of the spread of the sands of the Desert of Gobi over parts of Shensi. This spread is largely due to deforestation, and Mr Clapp points out the need for establishing a forest belt, which might fix the moving sands.

### AFRICA.

TANGANYIKA TERRITORY.—Geographical journals and communications published in Germany and Austria since the summer of 1914 are only now beginning to reach us. From the Geographical Society of Hamburg we have received an elaborate memoir on a part of what was formerly German East Africa, accompanied by a very useful map. The memoir, which is entitled "Das abflusslose Rumpfschollenland im nordöstlichen Deutsch-Ostafrika," is based upon a journey of exploration by Dr Erich Obst in 1911-12, under the auspices of the Geographical Society, and in addition to the map contains a number of beautiful illustrations. It was published in 1915, and forms Vol. xxix. of the *Mitteilungen* of the Hamburg society.

BRITAIN AND ITALY IN AFRICA.—Little attention in this country has been drawn to the arrangement between Britain and Italy whereby the frontier between Egypt and Tripoli on the one hand, and that between British East Africa (Kenya) and Italian Somaliland on the other, have been modified. It may therefore be noted that the *Bulletin* of the Comité de l' Afrique Francaise

for July-August last gives an account of both agreements, accompanied by useful sketch-maps.

## AMERICA.

CANADA TO-DAY.—After a lapse of six years due to the war this publication appeared during the present year. The present issue contains a map and a great number of illustrations, and deals with almost every aspect of Canadian life.

VEGETATION MAP OF SOUTH AMERICA.—Dr Martin Vahl publishes in *Geo-grafisk Tidskrift*, vi., 1920, a clear and simple vegetation map of South America, with an accompanying article. The map is much generalised, and in several respects, notably in the extent of what the author regards as "rain forest," and differs from other vegetation maps of the area, but it has the advantage of being readily grasped.

INDUSTRIAL DEVELOPMENTS IN THE SOUTHERN UNITED STATES.—An article in the *Bulletin* of the Geographical Society of Philadelphia (xvii, 4) discusses, as one of the indirect effects of the war, the growing industrial development of the Southern States. Emphasis is laid in the first case on the possibility of bringing new areas, *e.g.* the "everglades" of Florida and the Mississippi flood plain and delta, under cultivation. The author, Mr George D. Hubbard regards, however, as more important the mineral wealth, now being developed by the aid of the abundant capital available in the North, and believes that in the near future new industrial centres will arise in the hitherto chiefly agricultural South. He draws attention to the aluminium ores of Georgia, Alabama, Arkansas and Tennessee, the iron ores of the last two states, the widely distributed coal and oil reserves, the phosphates of Florida, South Carolina and Tennessee, which have hitherto been sent to England to be treated, the graphite of Alabama, and so forth. Many of these minerals have been worked extensively during the war, and the author holds that a new great industrial area is bound to rise in the Southern Appalachian region.

## ECONOMIC GEOGRAPHY.

COMMERCE OF THE BALKANS.—A very instructive article on the pre-war commerce and the commercial approaches of the Balkan peninsula, by Mr Clive Day, appears in *The Geographical Review* for May-June, 1920. The article is accompanied by a number of tables and diagrams, and shows that the Balkan States, being predominantly agricultural, trade only to a very minor extent with each other. As regards the countries which in the pre-war period received their exports and furnished their imports, there is, however, a curious contrast. As regards exports, the Balkans sent to north-western Europe, chiefly Britain, Belgium, etc., goods of more than twice the value of those which they imported. On the other hand Germany and Austria-Hungary together supplied goods of more than twice the value of those which they imported. In other words the industrial countries of the north-west imported large amounts of foods from the Balkan area, but paid in money not in their own manufactured wares. That money was used by the Balkan States to purchase manufactured goods in the markets of Germany and Austria. By a careful analysis of the facts the author arrives at the conclusion that the fact of the proximity of Germany and Austria counted for little in this condition of affairs: he ascribes it rather to the double fact that these countries protected their home markets to a large extent against imported food, while devoting their whole energies to the search for markets for manufactures. The paper will be found to contain a number of interesting facts.

Printed by Hossack & Paris, 4 Chapel Street, Edinburgh

LIBRARY
1921

# THE SCOTTISH GEOGRAPHICAL MAGAZINE

*Authors are alone responsible for their respective statements*

# THE SCOTTISH GEOGRAPHICAL MAGAZINE

PUBLISHED BY THE ROYAL SCOTTISH GEOGRAPHICAL SOCIETY
JOHN GUNN, D.Sc., HON. EDITOR
MARION I. NEWBIGIN, D.Sc., ACTING EDITOR

VOLUME XXXVII: 1921

EDINBURGH
PRINTED BY T. AND A. CONSTABLE LTD.
AT THE UNIVERSITY PRESS
1921

# ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.

## PATRON.

HIS MAJESTY THE KING.

## COUNCIL.

(*Elected 10th November 1921.*)

### President.

THE HON. LORD SALVESEN.

### Vice-Presidents.

His Grace the DUKE OF HAMILTON.
His Grace the DUKE OF MONTROSE, K.T.
His Grace the DUKE OF BUCCLEUCH AND QUEENSBERRY, K.T.
The Most Hon. the MARQUIS OF ABERDEEN, K.T., G.C.M.G., G.C.V.O., LL.D.
The Right Hon. the EARL OF ROSEBERY AND MIDLOTHIAN, K.G., K.T., D.C.L., LL.D., F.R.S.
The Right Hon. LORD SALTOUN.
The Right Hon. LORD SEMPILL.
The Right Hon. LORD ELPHINSTONE.
Brig.-Gen. the Right Hon. LORD PLAYFAIR, C.V.O.
The Right Hon. LORD STRATHCLYDE, G.B.E., LL.D.
PAUL ROTTENBURG, LL.D.
ROBERT S. ALLAN, LL.D.
JOHN HORNE, LL.D., F.R.S.
SIR J. ALFRED EWING, K.C.B., LL.D.
COLONEL SIR DUNCAN A. JOHNSTON, R.E., K.C.M.G., C.B.
PROFESSOR J. W. GREGORY, F.R.S.

### Chairman of Council.

H. M. CADELL, B.Sc.

### Chairmen of Centres.

*Glasgow* . A. ERNEST MAYLARD, M.B., B.S., F.R.S.E.
*Vice-Chairman.*—F. L. M. MOIR.

*Dundee* . J. C. BUIST.

*Aberdeen* . The Very Rev. SIR G. ADAM SMITH, D.D., LL.D., *Principal of Aberdeen University.*

### Ordinary Members of Council.

P. S. BROWN, J.P., *Dundee.*
JOHN MACFARLANE, M.A.
D. F. LOWE, M.A., LL.D.
T. S. MUIR, F.R.S.G.S.
ANDREW WATT, M.A., F.R.S.E.
MAJOR-GENERAL P. C. DALMAHOY.
JOHN HARRISON, LL.D., O.B.E.
WM. G. BLACK, LL.D., *Glasgow.*
EBENEZER DUNCAN, M.D., *Glasgow.*
A. B. GILROY, *Dundee.*
MAJOR W. H. COLTMAN, *Aberdeen.*
JOHN HORNE, LL.D., F.R.S.
PROFESSOR F. M. CAIRD.
W. R. KERMACK, M.C.
WILLIAM COWAN.
PROFESSOR D. J. MEDLEY, *Glasgow.*
F. L. M. MOIR, *Glasgow.*
H. A. PATTULLO, *Dundee.*
COL. SIR DUNCAN A. JOHNSTON, R.E., K.C.M.G., C.B.
PROFESSOR J. Y. SIMPSON, D.Sc., F.R.S.E.
W. B. BLAIKIE, LL.D., F.R.S.E.
HARRY R. G. INGLIS, F.R.S.G.S.
ROBERT T. SKINNER, M.A., F.R.S.E.
W. L. CALDERWOOD, F.R.S.E.
PROFESSOR T. HUDSON BEARE, B.A., B.Sc.
W. B. WILSON, W.S.
PROFESSOR T. J. JEHU, M.A., M.D., F.R.S.E.
MAJOR LIVINGSTONE BRUCE, M.C.
J. LEIPER GEMMILL, *Glasgow.*
WILLIAM MACKENZIE, *Dundee.*
JOHN CLARKE, *Aberdeen.*
J. HAMILTON BIRRELL, M.A., F.R.S.G.S.
The Right Hon. LORD CASSILLIS, J.P., D.L.
WILLIAM LINDSAY, F.R.S.G.S.
SIR W. LESLIE MACKENZIE, M.A., LL.D., M.D.
R. COCKBURN MILLAR, C.A.
HAROLD RAEBURN, F.R.G.S.
A. STEVENS, M.A., B.Sc., *Glasgow.*
PROFESSOR J. B. BAILLIE, *Aberdeen.*

**Trustees**—SIR F. GRANT OGILVIE, K.C.B., LL.D.; J. D. MONRO; JAMES CORNWALL; and the Honorary Treasurer or Treasurers, *ex officio.*

**Honorary Treasurer**—JAMES CURRIE, M.A., LL.D., F.R.S.E., Edinburgh.

**Honorary Secretaries**—RALPH RICHARDSON, W.S., F.R.S.E.; IAN BARTHOLOMEW, M.A., M.C.
*Glasgow:* JOHN W. GOURLAY, C.A. (Local Secretary and Treas.), 124 St. Vincent St.
*Dundee:* JAMES M'WALTER, 10 Reform Street.
*Aberdeen:* R. W. K. BAIN, Hon. F.R.S.G.S., 8 Union Terrace.

**Honorary Editor**—JOHN GUNN, D.Sc.

**Honorary Librarian and Map-Curator**—JOHN MATHESON, F.R.S.G.S.

**Auditor**—P. C. ROBERTSON, C.A., M.A.

**Treasurer**—T. B. WHITSON, C.A.

**Secretary** GEORGE G. CHISHOLM, M.A., B.Sc.

**Editor**—MARION I. NEWBIGIN, D.Sc.

**Assistant Secretary** GEORGE WALKER.

SOCIETY'S HALL: SYNOD HALL, CASTLE TERRACE, EDINBURGH.

**TELEPHONE 1720 CENTRAL.** **TELEGRAM: GEOGRAPHY, EDINBURGH**

# ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.

## CONDITIONS AND PRIVILEGES OF MEMBERSHIP.

The conditions of Ordinary Membership are :—Approval by the Council; the payment in the case of members in the Edinburgh district of an entrance fee of One Guinea; in the case of other members one of Half-a-Guinea; and the payment of the ordinary Annual Subscription or a composition for Life-Membership. The Annual Subscription is One Guinea, and is payable *in advance* at the commencement of each Session.

A Member may compound for Life-Membership by payment as follows, viz. :—When under ten years' standing, £20; when over ten and under twenty years' standing, £15; when over twenty and under 30 years' standing, £10; when over thirty years' standing, £5.

The Official Year, or Session, of the Society is from October 1st to September 30th. New Members are required to pay the Subscription for the Session in which they join the Society, at whatever period, and they are entitled to receive the ordinary publications of that Session. Resignations, to take effect, must be lodged with the Secretary *before* the commencement of a new Session.

The privileges of Ordinary Membership include admission (with one Guest) to the Ordinary Meetings of the Society, and the use of the Library and Map-Room. Non-resident Members may borrow books from the Library, but they must defray the cost of transit both ways. Each Member is entitled to receive, free by post, the *Scottish Geographical Magazine*, which is published quarterly by the Society.

Teacher Associate Membership.—With the object of helping to promote the teaching of Geography in Schools, "Teacher Associates" are admitted to certain privileges of the Society at a reduced Subscription of Fifteen Shillings. The privileges are limited to the use of the Society's Rooms, receipt of the magazine, the right to borrow *one volume* from the Library, and one ticket (not transferable and admitting only one) for the Society's meetings. Only professional teachers are eligible for election, and the applicants must state the name of the school at which they are engaged.

Branches of the Society have been established in Glasgow, Dundee, and Aberdeen, where periodical Meetings are held.

# CONTENTS.

## VOL. XXXVII: 1921.

### No. I.—JANUARY.


| | PAGE |
|---|---|
| Editorial, | 1 |
| Glasgow and its Geographical History. By Professor J. W. Gregory, D.Sc., F.R.S., | 2 |
| The People of Glasgow. By Professor T. H. Bryce, M.A., M.D., | 13 |
| The Cathedral and Bishopric. By Dr. George Neilson, | 21 |
| Municipal History and Activities. By Sir John Lindsay, J.P., D.L., Town Clerk of Glasgow, | 26 |
| The Rise of Trade and Industry. By William Power, | 37 |
| The Port and its Development. By D. M. Macintyre, M.B.E., F.C.I.S., Assistant Secretary to the Trustees of the Clyde Navigation, | 42 |
| Geography at the University of Glasgow. By Principal Sir Donald MacAlister, K.C.B., M.A., M.D., D.C.L., LL.D., D.Sc., | 53 |
| Overseas Relations. By A. Stevens, M.A., B.Sc., Lecturer in Geography in the University of Glasgow, | 56 |
| The Cartography of Glasgow. By John Arthur Brown, Hon. Sec. of Glasgow Archæological Society, | 67 |
| Bibliographical Note. By A. Stevens, M.A., B.Sc., | 76 |
| L'Envoi. By Sir Halford J. Mackinder, M.P., | 77 |


(*With Illustrations, Plates, Maps, and Sketch-Map.*)

### No. II.—APRIL.


| | |
|---|---|
| In Russian Turkestan under the Bolsheviks. By Major F. M. Bailey, C.I.E., | 81 |
| Nairobi and Kenya Colony (British East Africa). By A Resident, | 99 |
| The Resources of the Lower St. Lawrence Valley. By Roderick Peattie, Assistant Professor of Geography, Ohio State University, | 103 |
| The Falkland Islands Dependencies, | 116 |
| Geographical Notes, | 121 |
| The Volcanoes of Java—Expedition to Mt. Everest—The Uganda Protectorate—Expedition to Angola—New American Journal—The Definition of Geography—David Livingstone Medal for Dr. W. S. Bruce—The Wollaston Medal. | |
| New Books, | 128 |
| New Maps and Atlases, | 145 |


(*With Sketch-Map and Illustrations.*)

## No. III.—JULY.

PAGE

A Hot-Weather Trip in the Jezireh. By Major Campbell Munro, I.M.S., 149

London as an Imperial Capital. By Vaughan Cornish, D.Sc., . . 164

The Backbone of Africa, . . . . . 171

The Resources of the Lower St. Lawrence Valley. By Roderick Peattie, Assistant Professor of Geography, Ohio State University, . . 178

The Drift of Economic Geography: A Review. By Geo. G. Chisholm, M.A., B.Sc., . . . . . 184

The Edinburgh Conference of the Scottish Regional Association, . . 186

Geographical Notes, . . . . . 189

Present-day Russia—The Chinese Earthquake—Mrs. Forbes' Journey to Kufra—New Arctic Expedition—The Royal Geographical Society's Awards—Summer School of Civics—The Edinburgh Meeting of the British Association—Obituary: Miss M. A. Czaplicka.

Educational, . . . . . 193

New Books, . . . . . 195

Books Received, . . . . . 213

New Maps and Atlases, . . . . . 216

(*With Sketch-Map and Illustrations.*)

## No. IV.—OCTOBER.

A Hot-Weather Trip in the Jezireh. By Major Campbell Munro, I.M.S., 221

Geographical Observations in Spitsbergen, 1919 and 1920. By G. W. Tyrrell, A.R.C.Sc., F.G.S., F.R.S.E., Lecturer in Geology, University of Glasgow, . . . . . 226

Geographic Aspects of Tradition. By Rachel M. Fleming, . . 242

The Meeting of the British Association, . . . . . 247

An Example of Lake Erosion induced by Dredging. By E. M. Kindle, . 254

The Geographical Distribution of Commercial Timber in the Pacific States of North America and its Significance to the Lumber Industry. By H. M. Spink, . . . . . 257

Geographical Notes, . . . . . 266

Archæology and the Ordnance Survey—Census Results—A Survey of Hungary—The Jordan Valley and Irrigation Projects—Algeria—Eastern Peru—The Early Sussex Iron Industry—Coal Production in 1920.

Educational, . . . . . 272

New Books, . . . . . 273

Books Received, . . . . . 287

New Maps and Atlases, . . . . . 290

(*With Sketch-Maps and Illustrations.*)

INDEX, . . . . . 293

ANNUAL REPORT (see vol. xxxviii. p. 68).

SUPPLEMENT (with April number).

# THE SCOTTISH GEOGRAPHICAL MAGAZINE.

## EDITORIAL.

In the autumn of 1919 the Royal Scottish Geographical Society, in collaboration with the Committee for the National Collection of Old Maps of Scotland, published a small book devoted to the city of Edinburgh, illustrated by a long series of maps, plans, and old views. A hope was then expressed that it might be possible to follow this up by the issue of a similar publication dealing with Glasgow; but the steady rise in printing costs seemed at one time likely to make it necessary to postpone the enterprise indefinitely. Last summer, however, through the representations of a number of influential Glasgow citizens, the Town Council of Glasgow became interested in the scheme, and eventually made a grant to the Society in furtherance of it from the surplus funds of the Scottish Historical Exhibition.

The grateful thanks of the Society are thus due in the first instance to the Town Council, no less than to the individual contributors of the various articles which follow. Much assistance has also been rendered by others, and special acknowledgment is due to the following:—Sir John Lindsay, Town Clerk; the late Dr. Robert Renwick, who before his death had put his highly specialised knowledge at the disposal of the Editor; Mr. Thomas Nisbet, C.E., Master of Works and City Engineer, who lent old maps from the Corporation's collection, and gave much useful advice; Mr. T. C. F. Brotchie, Superintendent of Glasgow Art Galleries and Museums, who advised as to old views suitable for reproduction, and assisted in many ways in connection with them; Mr. T. R. Mackenzie, Secretary of the Clyde Navigation, and the Trustees, who generously presented copies of the coloured map which accompanies Mr. Macintyre's article on the Port; Mr. Thomas Cameron of the Glasgow Chamber of Commerce; Mr. W. Power of the editorial staff of the *Glasgow Herald*; and Mr. J. A. Brown, who, in addition to contributing the article on the Cartography, took an active part in

selecting the old maps for reproduction. Mr. J. W. Gourlay, Local Secretary and Treasurer, and the other members of the Committee manifested a continued interest in the project, and to them also the Society owes grateful thanks. Prof. Gregory, of Glasgow University, in addition to contributing the first article, gave much valuable advice as to suitable articles, and himself approached a number of the specialists able to supply these. Others whose names should be mentioned are Dr. W. G. Black and the late Dr. J. G. Bartholomew, whose death, while the scheme was still in its early stages, was an irreparable loss.

The book will be found to offer many contrasts to that which was devoted to Edinburgh, and it is hoped that the difference in treatment reflects in some measure the difference between the two capitals of Scotland. A special feature of the articles as a whole will be found to be that they fall more or less precisely into two sets, those approaching the subject from the detached scientific standpoint, and those written by men who are themselves engaged in making history. To the geographer it is not without interest to note, that while the latter tend to lay stress upon the way in which man has modified the physical conditions to serve his own ends, the former, notably Prof. Gregory, emphasise the fact that man, after not a little uncertainty and fumbling, has learnt merely to take full advantage of the latent possibilities of the position.

Another point of great interest is raised in Prof. Bryce's article. He shows that there is every reason to believe that, so far as physical characters are concerned, there has been no fundamental change in the population of the Clyde valley from prehistoric times to the present day. Further, since the chief racial element is "Iberian," the element which has always been predominant in Ireland, we have the curious fact that the most Scottish of all cities has a pronouncedly "Irish," or, as some would say, "Celtic," population. Many other similar points of general interest rise from the combination of the several articles, and it is their presence which gives such studies a wider importance than the purely local one.

---

## GLASGOW AND ITS GEOGRAPHICAL HISTORY.

*(With Sketch-Map.)*

By Professor J. W. Gregory, D.Sc., F.R.S.

The rise of Glasgow to the position, as regards population, of the third city of the British Empire (Calcutta being the second), of commercial capital of Scotland, and of the greatest shipbuilding centre in the world, though a modern development, is due to natural advantages which made Glasgow one of the earliest settlements in Scotland. The modern advantages of the site are its proximity to so commodious and defensible

a harbour as the Clyde estuary ; its position on the western edge of the coal and iron fields of Lanarkshire ; its convenience as a business centre for southern Scotland, for it is equidistant from St. Abb's Head, the Solway, and Islay ; its outlet through the Firth of Clyde to the Atlantic, while being also easily accessible to northern Europe through the Firth of Forth, on which the port of Grangemouth is only two and twenty miles distant; and its situation on the easiest direct route from the Highlands through Strathclyde and Annandale to the north of England —Stirling alone being in this respect in a comparable position. Moreover, as the meeting place where the people from the Highlands and Lowlands blended with one another and with immigrants up the Firth of Clyde from northern Ireland, Glasgow has a composite population, endowed with the varied capacities necessary for the full use of its varied resources and opportunities. Some of these advantages have been helpful only in the modern industrial development of the city ; but Glasgow, owing to the manifold geographical merits of its site, was among the first prehistoric settlements in Scotland and has been often claimed as the oldest of Scottish towns. Its special attractions to primitive man were doubtless the fords across the Clyde, the ease of access to the fishing grounds in the estuary, and the excellent sites for salmon traps provided by the neighbouring shallows. The tradition—one of the numerous variants of the lost ring and fish legend—of St. Mungo's miraculous recovery from a salmon of a precious ring thrown into the river by an injured chieftain, which is memorialised in the Glasgow arms, is appropriate, as the city was probably founded as a fishing village. The site was equally open to the rich game fields of Strathclyde and the bordering hill country, which then harboured wild cattle and red deer, bear and wolf, sheep and goat, pig and badger, otter and beaver, hare and fox ; and from them the primitive hunters obtained food and furs, skins, bones, and sinews. The local soils supplied excellent pottery clay and the forests provided inexhaustible firewood, and the oaks which by fire and stone axe were fashioned into dug-out canoes. These primitive craft, the contemporary stone implements and burial places are the earliest direct evidence of prehistoric Glasgow ; and as some of these relics date from the newer stone age or Neolithic, they belong to the earliest human occupation of the mainland of Scotland.

The great antiquity of this settlement is shown by the different geographical condition of Glasgow at its date from that of the Roman period. When the makers of the canoes paddled them over the site of Argyle Street the climate was much colder than at present, for glaciers were no doubt still in existence on the Scottish mountains. A sheet of ice had previously covered the Glasgow district, as proved by the boulder clay which it deposited ; but the Glasgow ice had disappeared so long before the first arrival of man that the rivers had already carved the boulder clay into rounded hills or drumlins separated by wooded glens. These hills were being cut back by tidal ebb and flow in the estuary, and the stones washed out of the clay were spread out as a broad bed of sand and shingle which now forms the river-side

plain through Glasgow. In Roman times, on the contrary, the levels of land and sea were apparently identical with those of the present time, and the physical geography of Scotland was the same as it is to-day. As there has been practically no change in the topography during the past 1800 years, the great changes which occurred between the Neolithic Age and Roman settlements indicate that the original foundation of Glasgow was several thousands of years B.C.

*The Prehistoric Canoes.*—The canoes,[1] of which at least eighteen have been found, throw much light on the condition of early Glasgow. The first was discovered in 1780. In excavating the foundations of St. Enoch's Church, a canoe was found containing a polished greenstone axe which has been often regarded as evidence of the Neolithic Age of the canoe. Two groups of five canoes were found on the southern side of the Clyde, one group at Springfield, opposite the lower Broomielaw, and the other five a little farther west at Clydehaugh. The second of the Springfield group is in the Hunterian Museum. It was found 20 feet below the surface; it is 20 feet 9 inches long and 30 inches deep; the width increases from 2 feet 9½ inches at the centre to 3 feet 6 inches at the stern. A hole near the bow was probably used for a mooring thong. Ridges were left in the canoe for seats. The boat may have been driven by single-bladed paddles, held free as in a Canadian canoe; but some vertical holes drilled in the rim suggest that each paddle may have been tied to a peg. One of the Springfield group had a plug of cork, indicating some intercourse with Spain. The other canoes were found at Point House, 80 yards west of the mouth of the Kelvin; at Bankton; near Clydehaugh; in London Street; in Jackson Street, Stockwell; at the foundation of the Tontine at Glasgow Cross; at Drygate, behind the new prison; and at Erskine Ferry.[2]

The occurrence of the canoes as far from the present river as Drygate and the Cross, and as much as 22 feet above present high water level, shows that the site of Glasgow up to the 25-feet contour was then occupied by water. The Clyde estuary then covered Argyle Street and the Trongate on the northern bank, and Govan, Eglinton Street, and Polmadie on the southern bank, and it probably narrowed to about its present width six miles above Glasgow bridge, between Newton to the south and Broomhouse to the north.

The Clyde at Glasgow was then bordered by rounded mounds or "drumlins" of boulder clay, which, after the emergence of the land to its present level, formed dry wooded hills overlooking the sandy swampy plain beside the Clyde. There are about seventeen well-developed drumlins north of the river, between Partick and Tollcross, and about twenty on the south of Glasgow between Govan, Pollokshaws, and

[1] The canoes have been generally regarded as Neolithic. Mr. Ludovic Mann tells me that he considers them not earlier than the Bronze Age, and he explains their occurrence in the raised beach as due to sinking in channels cut through the Neolithic gravels.

[2] For an account of the canoes, see *Glasgow Past and Present*, 1884, vol. ii. pp. 342-367. A sketch made in 1852 of one of the Clydehaugh canoes is reproduced in MacGeorge, *Old Glasgow*, 1880, p. 250. The stone celt found in the St. Enoch's canoe is figured in Wilson, *Prehistoric Annals of Scotland*, 1863, vol. i. p. 53.

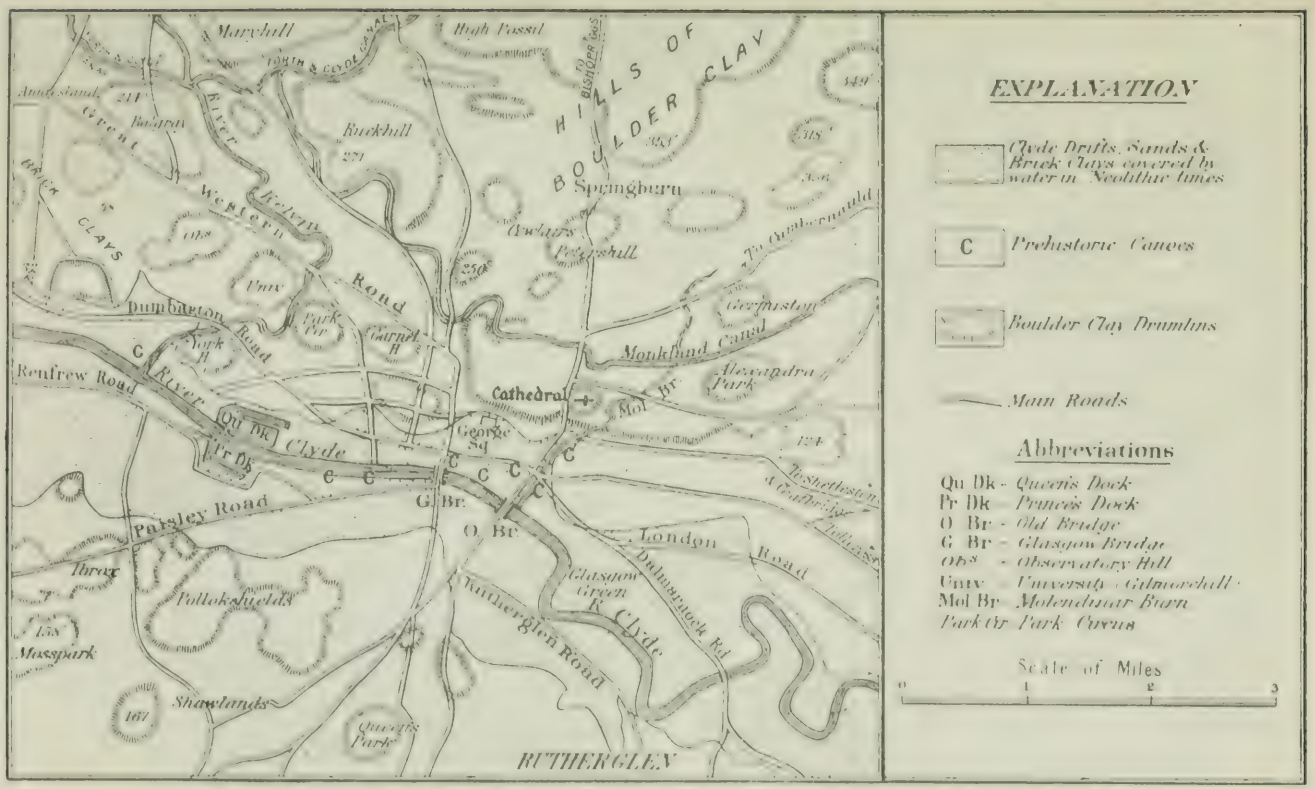



Fig. 1.—The Site of Glasgow.

Rutherglen. The valleys between these drumlins afforded shelter, and down them flowed perennial streams which gave water power that was subsequently used for mills. The original Glasgow stream, the Molendinar Burn (Plate I.), means "the miller's burn" (cf. Fig. 2). Glasgow has subsequently covered and obscured the drumlins, of which one of the best preserved is Gilmorehill, now crowned by the University.

The chief drumlins, the area covered by water at the date of the earliest settlement, and the sites where the dug-out canoes were discovered are indicated on the sketch-map (Fig. 1).

*The Bronze Age.*—The Neolithic fisher-folk of Glasgow were succeeded, probably after a very long interval, by the people of the Bronze Age, who erected massive stone monuments. Stonehenge, the cruciform avenue of standing stones at Callernish in the Lewis, and the Pictish towers or "brocks," are the most elaborate British representatives of these structures. Though the Glasgow area includes no monuments of equal rank to those, and no undoubted artificial trilithons, many standing stones, such as those near Strathblane, the burial mounds or tumuli near Pollok House and on the Cathkin Hills,[1] and the remarkably fine example of the cups and rings engraved on the rock at Edenbarnet, are religious relics of the Bronze Age people.

*The Roman Period.*—The sacred stones of the Bronze Age date from many centuries B.C.; but the traditional history of Glasgow begins in the fourth century A.D., with the reported residence of the Christian missionary, St. Ninian of Galloway, on or beside the site of the Cathedral. By Roman times the plain of shingle that had been laid down in Neolithic times on the floor of the estuary had been uplifted into the meadowland that now forms the level ground along Argyle Street and the Trongate. This tract of "haugh" was probably wet and swampy so the Celtic village was established on a drier site beside the Molendinar Burn.[2] It was probably there before St. Ninian, though it may have been small compared to the settlements at the neighbouring Roman stations. The Romans for a while occupied the Glasgow district; Agricola in 80 A.D. built a camp on Barr's Hill, near Kilsyth, 10 miles to the north-east: while Antonine's Wall, through Kirkintilloch, Bearsden, and Duntocher, passed 4 miles to the north. The Roman port on the Clyde was farther west, near Bowling, for Glasgow was not a Roman town. If the popular belief in the Roman origin of the old bridges at Duntocher, Bothwell, and Cathcart were valid, a Roman road would have traversed Glasgow, and crossed the Clyde at one of the local fords; but these bridges, like the "Roman Bridge" at Lanark, belong to the middle or later part of the seventeenth century.

That Glasgow dates from before the time of St. Ninian is probable, since the origin and meaning of its name have been lost in antiquity. The numerous interpretations that have been suggested, such as Claishdhu, the Dark or Grey or Green Glen, Glas-coed, the Dark Wood,

---

[1] Mr. Ludovic Mann tells me that the tumuli at Pollok and on the Cathkin Hills belong to the Bronze Age and those on Craigmaddie to the Neolithic.

[2] The position of the settlement is well seen in Barry's map (No. 4). See also Fig. 7.

Glasgow drawing duly 1783 by Scott sculpt et excud Edinr

A View from the South on the East side of St. Mungo's Church

and others, including the Beloved Green Place, the Blue Water, the Green Field, the Sacred Glen, the Beloved Water, the Black Church, and the Grey Smith, are uncertain etymological guesses. The name Glasgow is doubtless based on a Gaelic term better descriptive of some feature of the early village than the name Beloved Green Place is of the modern city.

*Episcopal Glasgow*, 500-1690.—The definite history of the city begins at the end of the sixth century, when St. Mungo or St. Kentigern settled on the traditional site of St. Ninian's cell, built a church, and founded a bishopric. The founder of historic Glasgow died on the 13th of January 603. Owing to his influence Glasgow developed as an ecclesiastical settlement around the church. Glasgow had the advantages that it was accessible from most parts of southern Scotland by tracks through strath or over moor, and by boat from all the Western Isles, while it was sufficiently far up the Clyde and protected by shoals to be moderately safe from Viking raids. It became the leading Scottish centre of Christian culture, doubtless helped by intercourse with Ireland, then the home of, at least in Geography, the most advanced scholarship in Europe. The population, however, remained small, and the town during this period was of secondary political importance. The capital of Scotland was at Dunstaffnage, beside the mouth of Loch Etive, near Oban, till in 843 its symbol of authority—the Sacred Stone of Destiny, now the Coronation Stone at Westminster Abbey—was removed by Kenneth MacAlpine to Scone, three miles from Perth. Meanwhile, in the seventh century, Edinburgh had been founded by Edwin, King of Northumbria, practically as an English outpost. It was recovered for Scotland, but it was too exposed in the Border country to be safe, and was only chosen as the capital after the murder of James I. in 1437. Perth remained the coronation city till after that of James IV. in 1488.

Glasgow, during this disturbed period, enjoyed the seclusion and security of an ecclesiastical town, ruled by its Bishop or, after 1492, by its Archbishop. The first Cathedral (destroyed by fire in 1189) was built between 1124 and 1136, when the bishopric was re-established; the diocese included south-western Scotland, from the Clyde to the English border, excepting Galloway. The town was constituted a burgh between 1175 and 1178, and at the same time the jurisdiction of the Bishop was confirmed, and successive charters enlarged his secular powers. Glasgow Castle was the home of the Bishop, and he appointed Provost and Magistrates. The episcopal control was gradually relaxed in practice, but it was not until 1611 that the first charter was granted by the Crown direct to the Provost; and it reaffirmed the power of the Archbishop to appoint the city authorities and collect the city dues. It was not until 1690, in the reign of William and Mary, that the citizens received the right to elect their Provost without the intervention of the Bishop, and Glasgow at length became an independent civil burgh.

The ecclesiastical government of Glasgow was of fundamental importance in its history and in that of the religious development of Scotland. After the death of Jocelyn in 1199 the Archbishop of York

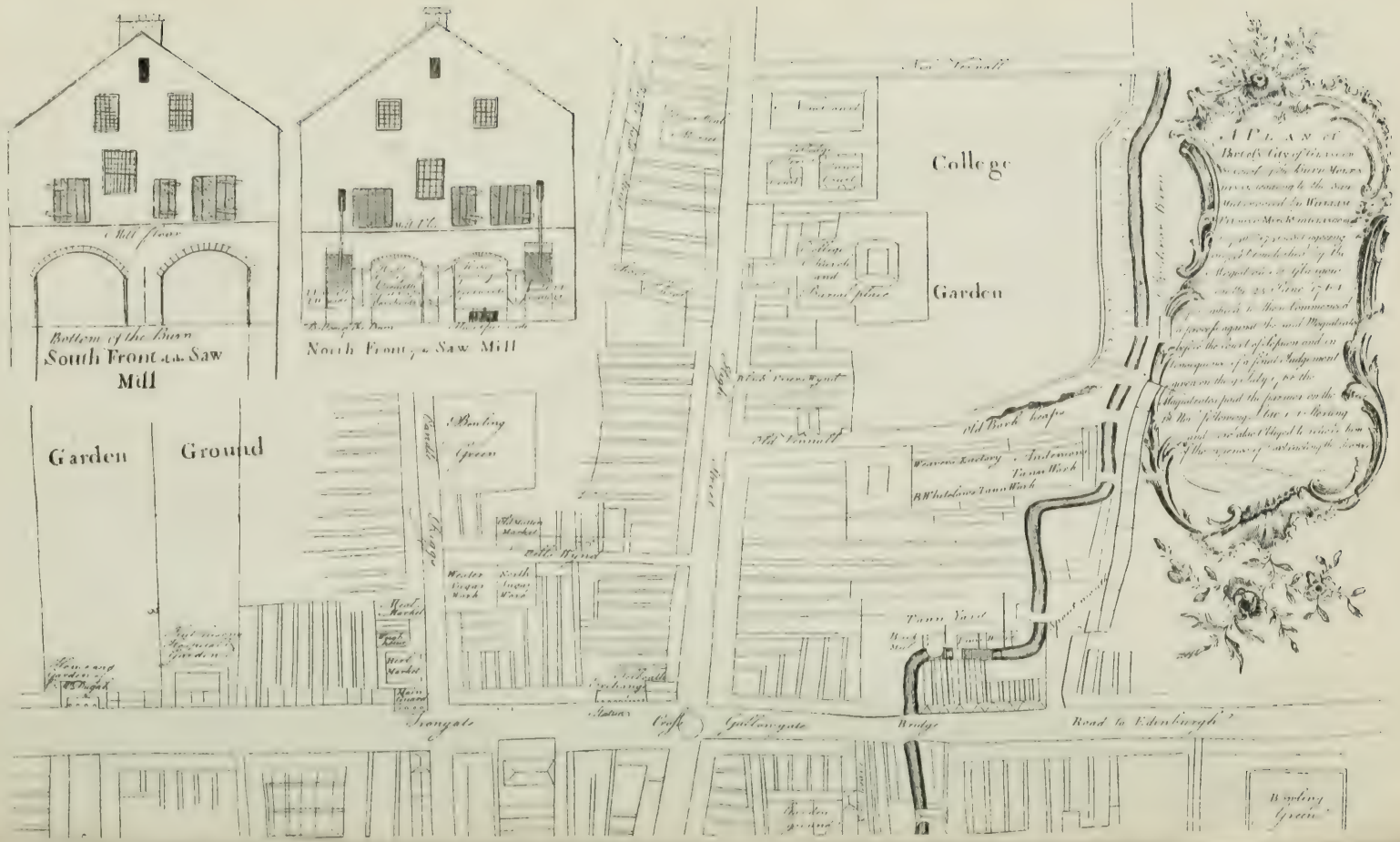
asserted his jurisdiction over Scotland. Glasgow successfully resisted this claim, and secured from the Pope the decision that the Scottish Church was distinct from the English, and was directly under Rome. The church erected in Glasgow as the new Cathedral became the finest ecclesiastical building in Scotland. But the most important contribution of the Glasgow bishops to the progress of Scotland was the establishment in 1451 of Glasgow University by a bull secured from Pope Nicholas V. through the influence of Bishop Turnbull.

The ecclesiastical city was surrounded by rapacious burghs. Rutherglen to the south-east, Renfrew to the west, on the south of the Clyde, and Dumbarton farther down the river, on the northern bank, all seem to have been jealous of Glasgow, and they claimed the right to tax its trade. Glasgow was protected from its neighbours by the charters of 1226, which limited Rutherglen to a toll at Shettleston, and of 1275, which prohibited interruption by Dumbarton with Glasgow's free outlet down the Clyde and passage to Argyll. The city, however, in spite of its religious and scholastic eminence, remained small as regards population. At the latter part of the fifteenth century its inhabitants numbered only 2900; by 1556 they had increased to 4500, but it was then only the eleventh town in Scotland. In the seventeenth century it made quicker progress; the population at an enumeration in 1600 was 7000; it doubled between then and 1660, when it became, as stated in Ray's *Itinerary* (1661), the second city of Scotland.

*The Glasgow Bridge.*—The upgrowth of a market town beside the Cathedral, along the present High Street, followed the erection of a bridge across the Clyde. So long as the chief industry was fishing, and the people all had canoes, they lived in groups of huts along the river; but the construction of a bridge concentrated settlement between it and the Cathedral on the ridge west of the Molendinar Burn. Glasgow therefore developed as a bridgehead town. A wooden bridge is mentioned in 1285; the first stone bridge, of eight arches, and wide enough for pack-horses, was built either by Bishop Rae about 1339, or by Bishop Glendonwyn between 1408 and 1425 (see also Plates IV. and V.).

*The Navigation of the Clyde.*—The bridge therefore primarily determined the position of Glasgow, but the Clyde for long contributed very little directly to the development of the city, as it was of no use for navigation. Up stream the river was obstructed by rapids and waterfalls; down stream were shoals, too shallow even for mediæval coasting vessels. The first effort to open the Clyde from Glasgow to the sea was in 1566, when a labour force from Glasgow, Renfrew, and Dumbarton camped for weeks beside the river and tried to cut a navigable channel through the Dumbuck sandbank. This effort was unsuccessful. The seaport of Glasgow, until 1658, was Irvine, on the Ayrshire coast, whence goods were brought by barge or road. In 1658 the magistrates of Glasgow tried to buy ground at Dumbarton on which to establish a more convenient port. Dumbarton refused to sell land from the fear that "the great influx of mariners and others would raise the price of provisions to the inhabitants."

Glasgow being thus unable to secure a suitable harbour on its own


Bottom of the Burn
South Front of the Saw Mill
North Front of the Saw Mill
Garden
Ground
College
Garden
Bowling Green
Old Bank
Old Tennall
Tenter Yard
Road to Edenburgh

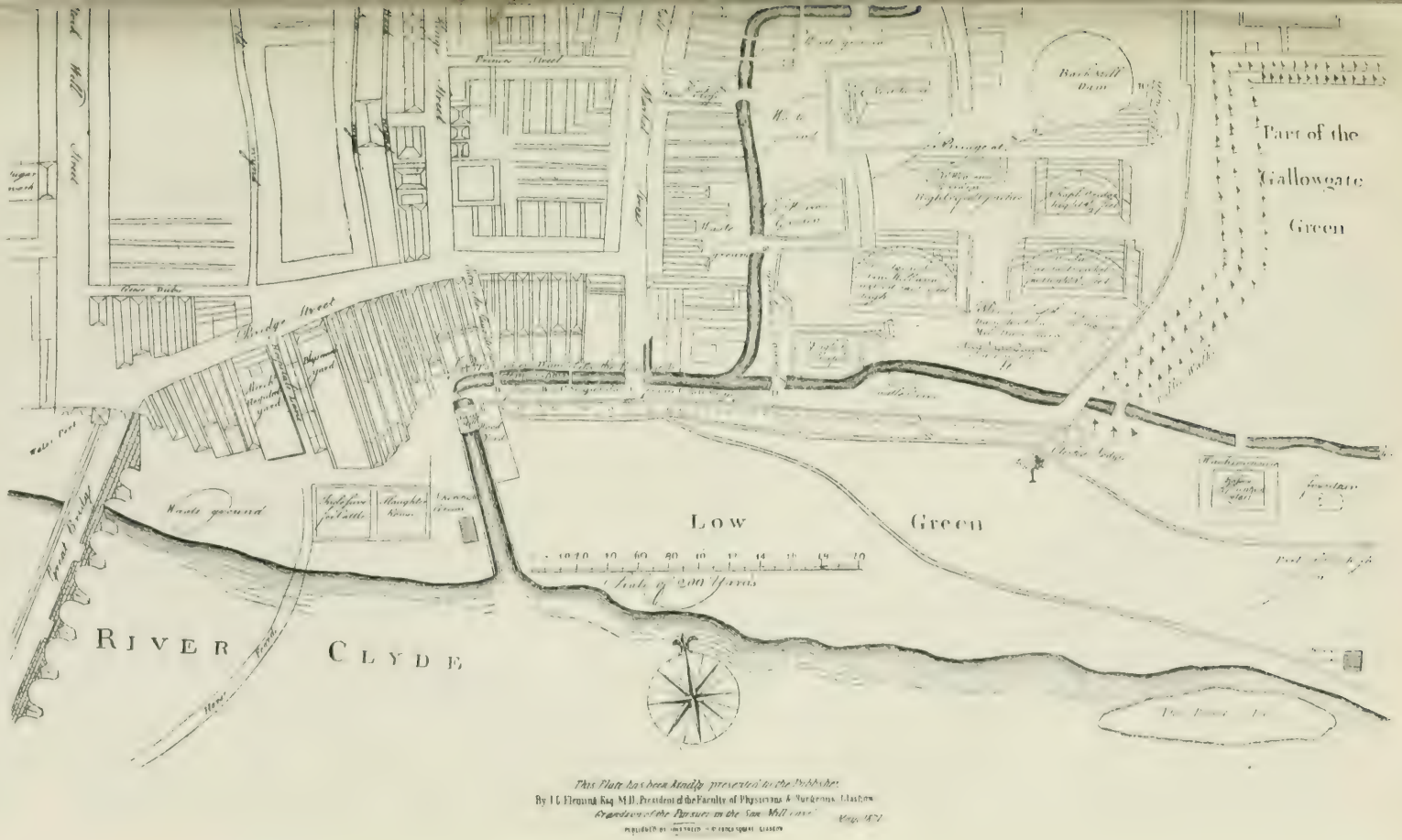



FIG. 2.—The Course of the Molendinar Burn.

side of the Clyde, purchased 13 acres opposite Dumbarton on the southern bank, and established there Port-Glasgow, and the first Scottish graving dock. The new port at the time proved a failure, and the growing commerce of Glasgow led to efforts to improve the Clyde. A quay was built at the "Broomylaw" in 1688, but the river was too shallow to make it of real service. The first definite scheme to improve the Clyde was that of Smeaton in 1755. He proposed to build a lock at Marlingford, four miles below Glasgow Bridge, so as to secure 4½ feet of water at Glasgow quay at all states of the tide. If Smeaton's policy had been adopted the city quays would have been useful to lighters discharging cargoes, but no ships could have reached Glasgow. The question was fortunately reinvestigated by John Golborne of Chester in 1768 and by James Watt in 1769. Golborne had introduced the system of making rivers scour out their own beds by confining the current between jetties; he thought it would be possible by restricting the channel of the Clyde, by ploughing the shoals, loosening the bed, and dredging, to secure four feet of water at the Broomielaw even at low tide. In 1773 Golborne's method was adopted, and he was given a contract to make a passage 6 feet deep and 300 feet wide through the Dumbuck shoal. His work was so successful that he deepened the channel 10 inches more than was specified, and he was given £1500 above his contract price. Rennie, in 1799 and 1809, extended Golborne's system; the natural scour continued to deepen the channel, and by continuous work throughout the nineteenth century the Clyde has become navigable for large ocean-going vessels, and Glasgow has become a great seaport.

The navigable Clyde is, however, essentially artificial. "Probably," says James Deas (*The River Clyde*, 1876, p. 1), "for no river in Britain has so much been done 'by art and man's device' as for the river Clyde above Port-Glasgow. In fact, from a mile below Bowling upwards to Glasgow, a length of 12 miles, the Clyde of the present day is nearly as much an artificial navigation as the Suez Canal. It requires constant dredging to maintain its depth; and the ever increasing size of the vessels of the mercantile navy necessitates the continued deepening of the river, to enable the navigation to keep pace with the demands of the shipping trade. Even so recently as one hundred years ago the river was almost in a state of nature, and was fordable on foot at Dumbuck Ford, more than 12 miles below Glasgow." High water, according to Deas, had in 1876 become 10 inches higher than in 1853, and low water 8 feet lower, owing to the improvement in the channel allowing the tide to ebb and flow much faster. Smeaton's lock system was fortunately not introduced at the time; but owing to changed conditions, the idea of locking the Clyde below Glasgow is now under discussion for a different purpose.

*Glasgow as a Commercial Capital, and the Geological History of the Clyde.*—The change in Glasgow ideals from an ecclesiastical seat to a vigorous commercial centre is exemplified by the abbreviation of its city motto. Its original form, "Let Glasgow Flourish by the preaching of Thy Word," was not officially abridged to "Let Glasgow Flourish" until 1866; but

towards the end of the seventeenth century Glasgow adopted methods of securing prosperity and an attitude to negro slavery which were hardly consistent with the spirit of the Word. The establishment of the Trans-Atlantic colonies and the rise of English power in India led Glasgow to pay more attention to foreign commerce, and "The Company of Scotland trading to Africa and the Indies" was established in 1695. Glasgow owes its special advantages for Trans-Atlantic trade to the geological structure of Britain. The older and harder rocks occur on the western side of the country, and the softer younger rocks lie to the east. As the older rocks are the more resistant, the mountainous districts of Britain are to the north and west. The hills, generally speaking, have their steeper slopes to the west, and a longer gentler declivity eastward to the North Sea. Accordingly, the chief rivers flow down the eastward slope, while those discharging westward are mostly short and broken. The eastern rivers have deposited at their mouths such quantities of silt that the English eastern estuaries are mostly small; except for those which have been made artificially, they are generally useless to large modern vessels. The Thames having been revived by recent geological changes, is the chief natural port on the eastern coast. The western coast, on the other hand, has abundant harbours, but, though they are excellent, the country behind them is generally of inferior value. The three western harbours which flourished by developing the Trans-Atlantic trade are Bristol, Liverpool (which superseded Chester owing to the shoaling of the Dee), and Glasgow. Some other western harbours, such as Fishguard, have been utilised later.

The advantages of Glasgow as a western port are due to the remarkable geographical history of the Clyde. Its sources were no doubt originally in the Argyllshire highlands to the north-west of Glasgow.[1] Its head streams flowed over a plateau which, at the height of about 1000 feet about present sea level, covered the Firth of Clyde and the lower Clyde Valley. The plateau sloped gently downward to the south-east and its streams converged in the district south of Lanark, whence the Clyde passed through the existing wind gap at Biggar, and continued eastward down the Tweed Valley. It flowed south of Peebles through a channel now filled with glacial deposits, and continued to the North Sea through the lower Tweed. Later on, by the combined effect of rapid erosion by the swift western streams and of earth movements which broke up the Western Highlands, the original head streams of the Clyde-Tweed river were discharged through the Loch Long Valley to the Firth of Clyde. A young and active river which drained the Renfrew plateau to the Firth extended its head stream eastward and at length captured all the former tributaries to the Tweed west of the Biggar Gap; and the Clyde became the chief British river flowing north-westward. The growth of the Clyde formed a fine natural harbour below Dumbarton, which serves as the natural outlet for Strathclyde and the western part of the Midland Valley of Scotland.

[1] Cf. H. M. Cadell, "The Dumbartonshire Highlands," *Scot. Geog. Mag.*, vol. ii., 1886, pp. 337-347.

*Acceleration of Glasgow's Progress.*—1. *The Union.*—The results of the commercial efforts of Glasgow in the seventeenth century were disappointing. Port-Glasgow proved at the time a costly failure, and the population of the city in 1708 was still only a little over 12,000. The geographical conditions were then unfavourable, for the adjacent country, from its remote northern position and its wet climate, was agriculturally poor. Scotland was then still excluded from trade with the English colonies, and its own colonising attempt in Darien had proved a tragic disaster. A brighter future was opened by the Union of the Parliaments of England and Scotland in 1707. This step was at the time most bitterly opposed in the city and provoked violent local riots.

2. *The Trans-Atlantic Trade.*—The Union made the English colonies British and admitted Scotland to a share in their trade. Glasgow promptly took an active interest in tobacco and sugar. The manufacture of sugar-mill machinery is still a leading Glasgow industry, and the names Jamaica Street, Virginia Street, and Plantation Quay recall the early imports of sugar, rum, and cotton.

On the introduction of cotton, unlike Lancashire, where the cotton imported at Liverpool has to be carried inland for manufacture, the moist climate, excellent water, and abundant power in the immediate proximity of Glasgow led to the establishment of local cotton manufacture and printing.

The growth of the West Indian and American trade transferred the centre of Glasgow from the precincts of the Cathedral and the High Street to the next glen on the west. The names of the streets bear witness to the new interests that accompanied this change of position, as may be seen by comparing the successive maps of Glasgow in 1650 (Map 6), Ross's map of 1773 (Fig. 7), and Fleming's map of 1808 (Map 5). Around the Cathedral are such theological titles as John Knox Street, Ladywell Street, and Ark Street, and those named after primitive trades, Candleriggs, the Salt Market, Weaver Street, Shuttle Street, and Mason Street. The chief thoroughfare of the new commercial city was Jamaica Street; at least four have been christened India Street: and Havana Street is reminiscent of the fortunes made from West Indian tobacco.

*Glasgow as a Mining and Metallurgical Centre.*—By 1763 the population had grown to 28,300. A still more rapid growth shortly after that date followed the development of the coal and iron fields in Lanarkshire. Coal had been worked on a small scale in Scotland since the fourteenth century; but it was only on the development of the iron manufacture that full use could be made of the coal, thereby laying the foundations of Glasgow's industrial importance. Imported iron ores had been previously smelted in the west of Scotland, as along Loch Fyne and Loch Maree. With the exhaustion of the local firewood the industry ceased, but it was started again with charcoal fuel in 1750. In 1760 the famous Carron Works near Larbert founded the modern Scottish iron industry, and in 1782 the Clyde Iron Works were established in the suburbs of Glasgow. From this time forward the city grew rapidly. The population, in the decade 1780 to 1791, rose from 42,000 to 66,000, and this growth was the beginning of the great increase during the

nineteenth century. For this development Glasgow is indebted not only to its local mineral resources, but largely to the inventive genius of its citizens. Glasgow has played a leading part in the development of many modern industries. The iron manufacture was stimulated by the discovery by Robert Mushet in 1801 of the blackband ironstone, which was worked with special ease as it is a self-smelting ore. In 1828 Neilson introduced the hot-blast, which, by its great economy of fuel, was one of the epoch-making discoveries in the metallurgy of iron. Meanwhile Glasgow had given to the world the still more momentous invention of the steam engine, for it was on Glasgow Green, while thinking over the repair of a model Newcomen engine belonging to the University, which is still in the Hunterian Museum, that Watt thought of the separate condenser, and thus made the steam engine a practicable machine. An almost equal advance in the development of steam was made by the further economy in its use achieved by John Elder's triple-expansion engine. Watt's steam engine was applied by Henry Bell in the *Comet* to shipping. Thus the Clyde was the first river in the Old World to be navigated by steam power. Since the days of Bell's *Comet*, shipbuilding and marine engineering have continued to flourish on the Clyde till, thanks to the initial impulse of Watt and Bell, and to the association of one of the finest harbours on the Atlantic with a rich and easily developed mining field, Glasgow has become the greatest shipbuilding centre in the world.

Geographical factors have controlled each of the main stages in the development of Glasgow: its foundation as a prehistoric fishing village, its influence while a mediæval bridgehead, and its modern expansion as a Trans-Atlantic port and industrial centre. With fine insight Glasgow was selected by St. Mungo as the chief centre for the Christianisation of the country, and by Bishop Turnbull six centuries later as the chief educational centre for Western Scotland. Subsequently, when political changes enabled Scotland to share in the rising Trans-Atlantic trade, Glasgow became a port and was able to use to the full the rich mineral resources of the adjacent coal-fields. Its commercial and industrial activity gave Glasgow cosmopolitan interests, which it combined with the philanthropic zeal and intellectual interests inherited from St. Mungo and Bishop Turnbull. It was in accordance with Glasgow traditions that David Livingstone began work as a missionary before he became one of the world's great geographers and the pioneer of British administration in Southern Equatorial Africa. The spirit of modern Glasgow may be traced to three streams of influence: the Cathedral, the University, and the character of its commercial leaders as typified by Bailie Nicol Jarvie. The combination of these influences inspired such noble adventures as the African Lakes Corporation, the Stevenson Road, the establishment of African industrial missions and the calling of the Kikuyu Conference, and also led to the hegemony of Glasgow in municipal enterprise. To the same influences may be traced the sincerity, originality, and intellectual independence of the citizens, qualities nourished during long development in the isolation of the most north-westerly of the great cities of the Old World.

# THE PEOPLE OF GLASGOW.

By Professor T. H. Bryce, M.A., M.D.

Like every great city Glasgow has drawn into its busy life all sorts and conditions of men, and its present-day population is of a very mixed character. Geographically it is, and has always been, the nucleus of a sphere of attraction which comprises the greater part of the Western Highlands and Islands, as well as the Lowland western shires. This has from a remote period determined the basal stratum in the population, and the physical characters of the majority of the inhabitants. But her commercial and industrial supremacy has attracted to Glasgow citizens from every part of the United Kingdom, and foreign elements of all sorts have filtered into the population. There has necessarily been a steady process of fusion and assimilation going on which has tended towards the production of uniformity in physical type. But the same tendency towards uniformity is seen in every part of the country. Facilities of transport have in modern times greatly increased the fluidity of population, and types are more evenly distributed. It is remarkable, notwithstanding, how certain physical characteristics seem to cling to certain areas, and how in spite of admixture physical types persist and are perpetuated.

The nature of the environment also appears to have its effect in neutralising the character of a city population. It has been shown how in towns situated in districts where fair and dark elements are placed in juxtaposition, the urban population is darker than the rural. City life does not seem to suit the blond types so well as the dark. Further, where the general population consists of a mixture of round-headed and oval-headed people, it would seem that in the urban population the oval-headed elements are proportionally more numerous. The average stature also tends to fall in cities.

While these facts have to be borne in mind, and due allowance made for them, the sequel will show that in the mass the present-day population of Glasgow, especially if we include the surrounding districts, has remained, to a greater extent than might be expected, true to the characters which were determined by its geographical position and historical development.

All the races of Europe, physically considered, are different blends of the same primitive elements. It would appear that when the primary movements, as they may be termed, of population had come to a close, and certain blends had consolidated into racial groups, types became more or less fixed. These types then underwent further development and modification, each in its own particular area. This is true even within the several larger areas. Local types were established and still persist, more especially of course in isolated districts which offer few inducements for immigration. In this country the last half-century has seen a vast shuffling of the population. Local groups are becoming more and more broken up and altered in aspect by admixture.

The impression received by an ordinary observer in regard to the population of Glasgow at the present time is that we are not a tall people. Stature varies greatly, and there are many individuals over the average height, but on the whole our inches are no more than the average. Complexions on the whole are dark, not fair. Hair of the darker shades of brown passing into black is very common. Red hair is not frequent, and very fair hair is rare. Heads are almost uniformly oval, the faces long, and without special projection of the cheek bones.

Such statistics as are available generally confirm this impression. The tables published by the Anthropometrical Committee of the British Association and by Dr. Beddoe, as well as those for school children collected by Messrs. Gray and Tocher, indicate that there is a marked degree of darkness. While Glasgow appears distinctly lighter in complexion than the counties of Argyll and Inverness, it is darker than any of the eastern counties. The vast majority of the inhabitants are of course mixed types in respect of pigmentation as determined by hair and eye colour. The statistics show that all over Scotland the majority of the inhabitants have hair of some shade of brown—lighter or darker. The actual percentage in any given area is determined by the proportion of individuals with fair hair (flaxen, yellow, or red), and those with pure black hair without any tinge of brown. In certain districts the fair-haired persons occur in larger numbers, and a reduction in the percentage of the brown traits is chiefly due to increase of the blond traits. The distribution of light and dark brown hair varies in different localities. In the Glasgow area the darker-haired individuals bear a larger proportion to the total population than they do in the eastern and northern parts of Scotland, and of the towns of the country it is distinctly the darkest. If a comparison is instituted between the prevalence of pure blond and pure brunette types, it will be found that the percentage of pure brunettes is larger in the West than it is in the East. It is to be expected, of course, that dark eyes should be associated with dark hair, and in the general order of things this is so; but in the western districts a prevalent combination is that of light or grey eyes with dark hair. This is particularly a Celtic feature, and is widespread in West Scotland, and also in Ireland. All available statistics indicate a preponderance of light and grey eyes in Glasgow. It may be plausibly attributed to the early racial mixture which will be defined below, but the possibility that the lack of development of pigment in the iris may be due to the environment must not be altogether overlooked.

The statistics of pigmentation, such as they are, have thus demonstrated that the West of Scotland is darker than the East, and that the darker traits are in greatest preponderance over the Western Highlands in the counties of Argyll and Inverness. Records regarding head-form also show that heads are slightly longer in proportion to their breadth in the West.

An extensive series of skulls, which dates from about one hundred years ago, has shown us that in respect of head-form the inhabitants of Glasgow of that date were very homogeneous. The length of the head from before backwards is great in itself, and great also in proportion to

the width. The skull has therefore a long oval shape, and the back part or occiput is full and bulging, so that there is a relatively great length behind the ear. The vault rises fairly high ; the forehead is full and broad ; the face is long and oval in most instances ; the ridges above the eyebrows are not specially projecting, nor the cheek bones prominent. In only one or two instances in the series referred to did the skull differ from the long oval type. It then belonged to the broad or globular variety of skull, in which the breadth is relatively great in proportion to the length, and the face is broad in proportion to its height from the root of the nose to the chin. People with heads of this type, which is the prevalent one in Central Europe, are not numerous in any part of Scotland, but seem to be least frequent in the West.

Such, then, are the general features of the population of Glasgow, and of the districts round about it. The prevalent type is a neutral one, and every variety and shade is to be met with, yet, taken as a whole, the area of which Glasgow is the centre has a character which at once distinguishes it from some other districts, say from Aberdeen and Aberdeenshire.

The place names of Glasgow and the surrounding district are mainly Celtic, with some superposition of Teutonic elements. It seems now generally agreed among Celtic scholars that all the Gaelic we have came from Ulster. The language previously used in the district was British, which differed little if anything from Welsh.[1] Thus the substratum of the earliest place names is British modified by the later influence of Gaelic. The importance of this fact in connection with the ethnology of the Glasgow area will appear as we proceed.

In this connection it may not be superfluous to point out that difference in language does not necessarily imply a difference in race, nor a change of speech a change in race. It may not even imply conquest by violence, or suppression by a ruling caste of strangers. In studying the evolution of the Scottish nation we have to allow more for the peaceful penetration of cultural influences than has generally been admitted. There has been less change of blood than the accounts of the older writers would lead us to suppose.

To comprehend the ethnography of Glasgow and the lower Clyde valley we have to go back into far antiquity, long before the time of written records.

The earliest trace of man's occupation of the site of the city carries us back an indefinite period into the remote past, to the time when a hunting and fishing population occupied the banks of the river and pushed their fortunes upon its surface in rude canoes dug out from the boles of trees by aid of fire and chisel, probably of stone. Quite a number of these ancient vessels have been discovered both on the north and the south sides of the river, deep below the present busy streets, and above the present high tide level (cf. p. 4). But we know nothing directly about the builders of these canoes. It is only when we have the chance of examining the human remains in ancient graves that we get

[1] Dr. Calder in *Glasgow Herald*, Jan. 31, 1920.

any light on the physical characters of the early populations. Further, the grave-goods—weapons, ornaments, pottery—give us the clue to the position in time and to the origin of these ancient races of which we have no written history.

From the evidence gathered from excavations of ancient graves and sites of habitation, we know that a people without knowledge of metals, and therefore still in their stone age or stone phase of culture, spread up the estuary of the Clyde from the west and south. The chambered tombs of these people still remain to witness their occupation of the Clyde area. Their rude stone monuments can be traced southwards on both sides of St. George's Channel to Western France, and a certain rude clay pottery of a distinctive kind associated with their remains can be followed in contemporary tombs as far south as the Pyrenees. The folk therefore must, we conclude, have come from the south. They were a branch of the Mediterranean race, and have been named the Iberians. They arrived many hundreds of years before the Christian era, but there is evidence to show that the country was occupied before their coming by an earlier people. In the absence of graves which can with certainty be related to an indigenous pre-Iberian people, we can only speculate as to what manner of men they were. We shall return later to this question. We have positive information about the Iberians. They were a short race of men with long narrow heads and high narrow faces. Although we have no direct evidence on the matter, it is probable from collateral evidence that they were dark in complexion, with black and perhaps curly hair. It is generally believed that they spread over the whole country, but their typical monuments are confined to the West and North.

We know that at a period nearly as remote, a second race reached Scotland from the South and East. They practised a different set of burial customs, and introduced the new art of smelting copper and tin to make bronze. Their pottery was quite different from that of the Iberians. On the whole their culture was an advance upon that of their predecessors, and it prevailed and replaced it. But all the evidence goes to show that the older race or races absorbed the newcomers. In short the new culture prevailed, but the older people had the b st of it in the struggle for existence. These immigrants were of short or medium stature and were probably brunette in complexion, but perhaps not so dark as their predecessors.

Further, their heads were of a different shape, which gave them a different physical aspect. Their skulls were short in proportion to the breadth, their faces broad in proportion to the height. They came from Central Europe, where the type has persisted from the Stone Age to the present day. The race probably came from the East into Europe and took root in the Alpine region. It spread from this centre and forms at the present day an important ingredient in the population of France, Switzerland, South Germany and Northern Italy, and in all the Slavonic peoples. In Britain this Alpine element merged with the earlier population, and although the type persists among us to the present day, and has been an important factor in the racial mixture, it

was swamped by the apparently dominant Iberian strain. The round heads never reached Ireland in numbers sufficient to produce any permanent ethnic effect.

These Bronze Age brachycephals in all probability came over to Britain in successive waves. The first comers brought that type of pottery known as the Beaker urns. The Beaker men of the Scottish short cists were short in stature, but the round barrow men in the south were, on the average, fairly tall, or at any rate of medium stature. There are at least two types of round barrow skulls, only one of which agrees with our short cist skulls associated with Beaker urns. The pure Alpine type represented by these last probably suffered some alteration from admixture on the Continent.

Burials which can be assigned to the early Iron Age are very few in number. In one group of such burials the skulls were of several types. Some might have belonged to the dolichocephalic people of the chambered cairns; one corresponded closely in type with a skull recently discovered in a cist in Peeblesshire, which belonged to a man of 5 feet 8½ inches in height. He might very well have been one of the tall fair Gauls who, as we know, were crossing over into South Britain for some time prior to the Roman invasion. The fact that the grave in which the skeleton was found was native, not Gaulish, the rarity of skulls of this type, and the absence of Gaulish pottery from the Scottish area, all argue against the idea of any invasion and occupation of the country by Gaulish incomers, but single individuals or small groups may have developed on the spot, because, as we shall see, it is possible that the elements for the development of just such a mixed type existed in the local population.

By this time the British peoples had learned the arts of the early Iron Age. They were experts in metal work, and had reached a high level of artistic workmanship in bronze and iron. The new culture undoubtedly came from the Continent, but the evidence points to its introduction by way of trade rather than by racial conquest and immigration.

From the evidence sketched above we conclude that the inhabitants of Scotland, as the Romans found them, were a mixed race, resulting from the commingling of a primitive unknown substratum with the Iberian and Alpine immigrants. If we take account only of the physical traits of the Iberian and Alpine elements, we should be obliged to conclude, judging from the physical traits of the indubitable descendants of these stocks in the present-day population of Europe, that the early Caledonians were of medium stature and of dark complexion. It is most probable that in their spread northwards the Alpine people became both taller and somewhat lighter by admixture with blond Teutonic elements on the Continent, but they cannot well have been the men described for us by Tacitus. He tells us that the Caledonians were tall, large limbed, and rufous, and he concluded from their appearance that they were of German origin. But there is no archæological evidence of any very early connections with Germany. The colour question apart, the chief difficulty in the problem is to account for the tall stature of the Caledonians, and consequently for the high average

stature of the inhabitants of Scotland in recent times. It has been attributed to the round-headed type of the Bronze Age by some, but the Alpine race, generally speaking, is of medium stature. It has also been referred to the later Gaulish immigrants, but, as we have stated, we have no evidence that they extended so far north in any numbers. Further, such evidence as we possess regarding the physical characters of the Romano-British population in England shows that they differed little from the earlier Iberians.[1] Huxley, to account for the statement of Tacitus, assumed a prehistoric infusion of a Germanic stock long before the date of the Saxon invasions of historical times, but again of this we have no evidence. For various reasons which cannot be fully detailed in this article, the writer believes that the most plausible theory to account for the facts, such as we know them, is that these islands were occupied, long before the Iberians appeared on the scene, by the same primitive substratum of the tall blond Nordic race as existed in all other parts of Northern Europe. The type was differentiated in the North in remote antiquity. It was indigenous, and the successor of still older types. It has persisted in the Teutonic peoples round the Baltic. It has been proved that it was the substratum in European Russia, but it was there submerged by the Slavonic round-heads, who were an Eastern offshoot from the Alpine stock. In Russia the Alpine type became the dominant factor in the racial blend. In Britain, on the other hand, the Iberian type became dominant over the Nordic, and later also over the Alpine type.

According to the hypothesis three elements entered into the pre-Roman population, and it is reasonable to suppose that they were blended in different ways, in different parts of the country. The Iberian element was probably in the ascendant in the West and North, in the regions where we still find their rude stone monuments; the Alpine was probably present in larger numbers in the East, for Sir William Turner proved that there is, or rather was in recent times, a larger strain of brachycephaly in the eastern parts of Scotland. The Nordic element was very possibly more strongly represented in the Central Highlands.

Of the three elements in the racial mixture two, the Nordic and the Iberian, were dolichocephalic, and one, the Alpine, brachycephalic. In respect of head-form dolichocephalic elements prevailed over the Alpine brachycephalic element. In the matter of stature the Nordic element was tall, the Iberian short, and the Alpine short or intermediate. The tallness of the Caledonians was a Nordic contribution. In regard to pigmentation the Nordic element was almost certainly fair, the Iberian dark, and the Alpine probably brunette, but perhaps not so dark as the Iberian. In the resulting mixture—we may infer from the distribution of colour at the present day—the darker traits have prevailed in the hair colour; pure types blond and black have continued to be separated out; and if the pure blonds are generally in excess of the pure darks it has been due to later infusions of blond elements. In the matter of eye

[1] Boyd Dawkins' *Report on Glastonbury Lake Village.*

colour it would appear that the Nordic trait of a light eye has been a dominant factor.[1]

In terms of this hypothesis the blend of physical characters which we see in the existing population was already established before the Romans arrived in North Britain. Since that date there have been redistribution, and superposition, but no addition of any new fundamental characters. The Saxons and Scandinavians brought more Nordic traits, the Scots from Ireland more Iberian traits—the relative proportions and grouping of physical characters and racial features were altered, but the fundamental mixture has remained the same.

On the whole the inference seems justified that the Mediterranean element in the racial blend has been the most dominant and persistent one. It has been in contest, from the first, with the Nordic element and has held its own. In the lower Clyde valley it has always been a strong factor.

The people who occupied the regions round about Glasgow in Roman times were part of the tribe of the Damnonii. They lay within the Roman province and only a mile or two from the Roman wall. They must have come into intimate contact with the life of the wall, and with all this involved in the way of culture and civilisation. How far any Roman blood was introduced into the population we do not know, but it would not seem that the Roman occupation left any permanent ethnic effect.

The people of Strathclyde were, of course, Celtic in speech, and used the Cymric form of the language, as testified by the fact that the substratum of the place names is Brythonic. Like the Romano-British people in what is now the Principality of Wales, they were, we have every reason to believe, in the main a dark, dolichocephalic race of mediocre stature.

After the Roman power was withdrawn from Britain the province was assailed by Saxon invaders. The Saxons had harassed the eastern coasts for the last half-century of the Roman occupation, but when the legions departed the land was at their mercy. The Frisians and Angles now occupied the Lothians, and the kingdom of Bernicia was founded. Meantime the Scots from Ireland occupied Argyll and the Isles, and set up the kingdom of Dalriada; but as they were, racially speaking, a kindred people, they brought no new ethnic traits into Scotland. Sometimes they acted as allies of the Britons against the common Saxon foe—sometimes as assailants. In any case, so closely to the Gaels did the inhabitants of the lower Clyde valley lie, that there must have been

[1] There is some evidence which indicates that eye colour, and probably also hair colour, in man follow Mendel's Law, and they seem, in some cases, to behave as separate unit characters. The case of head-forms is different. It may be considered proven that the distinction between the elongated and globular types of skull is a specific one, and that they represent contrasted characters in heredity. Treated statistically, the case of head-forms appears to be one of a blending of parental characters, like the variations in stature; on the other hand, the long persistence of types in spite of admixture suggests the possibility—the ordinary fluctuations within each class apart—that head-forms may behave in heredity like the colour traits.

considerable peaceful penetration of Gaelic elements. From these early days to the present time, Glasgow has been strongly recruited from the Western Highlands, and there has always been a considerable body of Northern Irish. In the writer's University class of the present session, largely drawn from the Glasgow district—when certain foreign and colonial elements are excluded—there are over 20 per cent. of men bearing names beginning with Mac, apart from the large number who possess other names of Celtic origin.

The history of Strathclyde for the centuries succeeding the evacuation of Britain by the Romans was a long struggle between Briton and Saxon, during which sometimes Saxon, sometimes Briton prevailed, but neither was completely overthrown. Political union between the Lothians and the kingdom of Cumbria or Strathclyde came about in 1057, when they were united with Scotia proper into one kingdom under Malcolm. His marriage with the Saxon princess Margaret may be taken as symbolic of the process of racial union, which had been proceeding, and which in a considerable measure influenced the Clyde valley. This is witnessed by the lighter tint in maps of pigmentation over the counties of Ayr, Lanark, Renfrew, and most of Dumbarton as compared with the darker tint in Argyll and Inverness, where there can have been little or no infusion of Saxon blood. But the identity of the local groups was preserved for some time. At the battle of the Standard in 1138 the Cumbrenses and Tevidalenses formed a separate body in the army of David I., from the Loudonenses or men of the Lothians. It is to be noticed, however, that now the men of the Lennox were brigaded with the Islesmen, not with the more southern representatives of the old kingdom of Strathclyde.

From the year 793 to 1263, when their power was finally overthrown at the battle of Largs, the Northmen harried all the coasts, and in some districts, as witnessed by the place names, extended far inland. They brought much of the West and the Isles under their dominion, but the immediate vicinity of Glasgow was not affected. In the outlying islands, as well as the extreme north, Scandinavian types are still to be recognised. Norse blood has entered largely into the racial blend in these districts, and, in so far as the Isles have contributed to the population of Glasgow, a certain trace of this element must be admitted.

Some of the best blood in Scotland is, of course, Norman in origin, as many of our most honoured national names proclaim. But the Norman strain, being of Nordic origin, had no effect on the physical traits, and, besides, it was represented only by a ruling caste.

In the West to-day the ancient blend of Iberian and Alpine races, with the Iberian as the dominant, is in the majority. Primitive British blood still flows in measure in the veins of those who dwell round the old cathedral of our patron British saint.

A final question, which has often been asked but is difficult to answer, certainly may be put:—Is the shorter darker Mediterranean type prevailing in the British Islands as a whole over the taller and fairer Nordic type? Is the Iberian-Alpine Celtic element submerging the Anglo-Saxon by a slow biological process? The answer to

these questions is of interest and importance, if there be any truth in the association of certain psychological traits with particular physical characters.

## THE CATHEDRAL AND BISHOPRIC.

By Dr. George Neilson.

Glasgow became a cathedral city possibly because at the junction of the Kelvin and the Clyde there was a manorial residence of the Kings of Cumbria. The shrine of St. Kentigern was within a couple of miles of the abode of King Rydderch. From the first there was an intimate connection with royalty, a sort of mutual dependence, which was a continuing feature of the institution and was favourable to the public authority of the prelates who held the see. The visionary promise to Kentigern that the community would grow into a "great people" was not accomplished all at once, and was after five centuries not yet hastening to fulfilment. Even such possessions as had gathered round the saint's little church on the Molendinar (more anciently spelt Molyndoner) had in Prince David's time, before he came to the throne of Scotland, shrunk to a few scattered lands and churches. Authentic history begins with the cathedral, when David, not yet monarch, determined towards 1116 to restore the see. The famous "Inquest of David" gathered up the fragments of its traditional possessions and was an eloquent enough appeal to the most profuse of royal patrons.

David's generosity had another impulse in the fact that Bishop John, consecrated in 1115, had been the prince's tutor. If a Dunfermline charter is not misleading, he may have held office as chancellor, the highest official dignity under the crown. This combination of ecclesiastical and secular authority was to be recurrent throughout the history of the bishopric. David manifested, both as prince and king, an unstinted goodwill which probably went far to repair all the losses the successors of Kentigern had sustained in the dark centuries. Before 1124 he made a grant of 100 shillings of land to build and restore the church, and one chronicler assigns to him all the honours of its erection. On its dedication day in 1136 he gave to the bishopric part of the lands of Partick which he had leased to the archdeacon: doubtless including what had been the residence of his royal ancestors. Subsequently he added to his gifts the extensive parish of Govan across the Clyde from Partick, another slice of Partick, the church of Cadzow, and the teinds or tenth part of the "Can" from Strathgryfe and Cunningham, Kyle and Carrick, besides an eighth of all his fines or pleas in the great province of Cumbria. Glasgow, as the bishop's seat, was made the head of a secular territory almost coextensive with the diocese itself. It included a vast area of moorland and mountain, a wild forest from Clydesdale to Galloway and the Solway, and was indeed a princely endowment such as might well prompt the criticisms of a needy inheritor of the crown, some centuries later.

Intimately associated with these endowments were the great feudal grants made to the Steward of Scotland, Walter, son of Alan, first by King David and afterwards by his grandson Malcolm the Maiden. David's grant may be reckoned as substantially Renfrewshire, to which in 1161 Malcolm added the portion of Partick which David had kept in his own hands. The manorial area thus severed from the crown extended from an unascertained line east of the Kelvin as far down the Clyde as Yoker, opposite the town of Renfrew, where Walter, the son of Alan, had his first dwelling on a site still indicated by the remains of the mote or mount of Castlehill. The Steward's territories were for a considerable distance bounded by the lands of the bishopric. The gifts to the see determined the limits of the stewartry. Probably also the trading bounds of the royal burgh of Rutherglen, the creation of King David, had to steer clear of trespass on the territory of St. Kentigern.

Most notable of all external events of the locality in early times was the plundering raid which the kinglet of Argyll, the famous Somerled, made in 1164. Presumably he represents the mingled forces of the half-Gaelic, half-Norse shipmen of the West Coast and the Isles, and certainly his expedition caused grave commotion in the valley of the Clyde. He made good his landing at Renfrew, but the energetic Bishop Herbert summoned his men, and a swift movement intercepted the invaders at Renfrew and cut them to pieces, Somerled himself being slain and his son Gellicolan drowned in an effort to re-embark. A remarkable poem which tells of this triumph of St. Kentigern and the "Saints of Scotland" was the work of a priest of the bishop's household—a fiercely pious story not badly told, one of the foundation documents of Scottish literature.

Onward from this time the position of bishop would seem to have steadily risen both ecclesiastically and politically. William the Lion's charter in 1176 was the first great sign of this: it authorised Bishop Jocelyn to have a burgh at Glasgow with all the franchises appurtenant. This vital institution was accompanied or immediately followed by the opening of a scheme for the building of a cathedral church, in room of the edifice of Bishop John, which had been destroyed by fire. Bishop Jocelyn had a long task before him, but his scheme both financially and architecturally was to be accomplished in his lifetime. The *Chronicle of Melrose* reflects the joy and pride of the clergy of Scotland in its note that in 1181 Jocelyn had gloriously enlarged the church of St. Kentigern, and that in 1197 the new cathedral church which he had erected was dedicated, although the structure was then only completed in a first phase.

To the same period falls to be assigned the acquisition by the diocesan authorities of a remarkable book, the "Pontifical" of Glasgow, a beautiful and dignified formulary of church services and ceremonies, such as the dedication of churches, ordinations of priests and professions of subjection to the mother church of Glasgow, as well as the ritual of ordeal and duel. Written originally for the diocese of Canterbury, this magnificent example of penmanship, dating probably about 1180, was

skilfully adapted to Glasgow by erasing "Dorobernensis" and substituting "Glasguensis" in the text. The volume is now in the British Museum, outliving by six centuries the new Cathedral of 1197, of which only a single pillar-shaft in the crypt remains. Another very creditable documentary property from that early time still exists also in the *Registrum Episcopatus Glasguensis*, or chartulary of the bishopric, containing charters, papal bulls, and important muniments. The editing of this fine record in 1843 by Cosmo Innes was a model performance, which did honour to the Bannatyne and Maitland Clubs which produced it. The *Registrum* itself is now at Blairs College, Aberdeen. The writer of this article was one of a little group of three who were privileged nearly thirty years ago to examine this *Registrum Vetus* in the hands of the venerable Archbishop Eyre in Glasgow, to whom it had been sent from Aberdeen for the purpose. The sole possession of the see still in the custody of the ancient faith, the chartulary, then seen by the courtesy of the stately old Archbishop, was a remarkable symbol of ecclesiastical history. Its execution and the comprehensive selection of its contents attest a practical spirit of order in the conduct of diocesan affairs. The Cathedral library was a most respectable collection, and the catalogue drawn up in the time of James I. must have been made by a librarian of sound equipment. A historian, however, was not forthcoming, and the "Breve Chronicon" engrossed in the *Registrum* is the merest compilation from Bower's *Scotichronicon*.

The thirteenth century found the bishopric a compact and well-administered diocese which, through political causes, especially a connection with royalty and the government, had acquired a leading influence among the high ecclesiastical forces in the realm. It had come to be associated with royal patronage bestowed for reasons of state. No wonder that the outskirts of the city became a barony and regality under the bishopric. Not fewer than eight of the bishops were chancellors of the kingdom, and a ninth, the famous John Cameron, was the king's secretary. The bishopric was thus very nearly the top-round of the ladder of political promotion, a fact which explains a certain public quality in the successive prelates as well as a distinct standard of skilful administration.

Returning to the thirteenth century, we see that as the Church developed the cathedral structure responded to the ecclesiastical expansion, and an edifice far statelier than its predecessors was through the labours of Bishop Walter and Bishop Bondington rising on the site. Art, worship, and ecclesiastical dignity advanced together. Richly endowed, served by at least a dozen canons, having the customs of Sarum as the base of its constitution, the church, with its wonderful crypt, where Kentigern lay, and the massive but graceful columns and vaulting in the great choir of five bays above, was a noble cathedral which was still growing as the time required. A grave interruption was at hand. When Robert Wishart became bishop in 1270 the crisis was still distant, but the closing decade of the century was marked by the English usurpation and the at first ill-starred patriotic resistance. In this an essential—indeed it was thought at the time the main—inspiration came from the

Bishop of Glasgow, and, as events proved, even the Cathedral itself had an illustrious share in the struggle with Edward I. Without reserve the Bishop threw himself and all the resources at his command into the scale in support of John Balliol until he was "down and out," and then in support of Robert the Bruce against the aggressor. Bishop Wishart was a chief power behind both Wallace and Bruce in the national cause. English historians count up the number of times he forswore himself, the series of oaths of subjection to Edward I. he broke. Edward had more than once in 1301 made his devotions at the altar of St. Kentigern, as well as at the great altar of the Cathedral in the choir. When the final die was cast in 1306, and Bruce, after the slaying of Comyn, rode north towards Scone, the Bishop brought out from the repositories of the Cathedral a banner of the arms of the late King of Scotland, which he had long kept secretly in his treasury, and sent it to Scone for the coronation. (The treasury was one of the western towers which an ill-informed and fatal æstheticism doomed to destruction in 1846-1848). Moreover, the timber which the English monarch had given to the Bishop for the belfry of the Cathedral was said to have been diverted by the daring prelate to be used in the siege of the king's castle or peel of Kirkintilloch. These counts in the Edwardian indictment are now reckoned among the proudest memories of the War of Independence, chequered though they are by the Bishop's capture in arms, to be followed by imprisonment till Bannockburn was his ransom.

During the fourteenth century the national conditions did not favour cathedral building, although probably the nave of eight bays was completed, but in the fifteenth Bishop Lauder went on with the chapter-house and the central tower, which his successor Bishop Cameron completed with a spire; and to Bishop Blackadder, at perhaps the opening of the sixteenth century, are assigned the crypt or Aisle of Car Fergus and the rood screen. This may be reckoned the last addition to "St. Mungo's work," which, as the proverb has it, was "never done."

Another notable bishop was William Turnbull, whose great distinction was his diplomatic triumph not only with James II. but also with Pope Nicholas V. in procuring the foundation of the University of Glasgow in 1451, for which an example had been given at St. Andrews forty years before. The final touch of dignity to ecclesiastical institutions in Glasgow came in 1491, when a bull of Pope Innocent VIII. raised Glasgow to an archbishopric corresponding in status to that of St. Andrews, constituted in 1472. The rivalry of the double primacy caused much unpleasantness, culminating in the episode of 1545, described with gusto by Knox, when in the Cathedral of Glasgow itself the crosses of Archbishop Dunbar and Cardinal Beaton of St. Andrews were broken in a scuffle for precedence.

The day of cathedral and archbishop as controlling ecclesiastical forces was still at noon. The cathedral establishment had now thirty-two canons. The archbishops were lords of the burgh of Glasgow; they chose the provost and bailies. They were perpetual chancellors of the University. Their domains were of princely dimensions. Their church courts had an immense and lucrative jurisdiction. The historian Lesley

in 1578, describing Glasgow, says "The landes rounde about the space of 4 or 5 myles pertaines to the Archibischope," but their possessions were far beyond that limit. The rental book still extant embraces, besides the burgh and the barony of Glasgow, the baronies of Carstairs and Stobo and Eddleston. In the city each trade or craft incorporated, from the Skinners and Weavers in 1516-18 to the Masons and Cordiners in 1551-59, had its own saint with a special altar in the Cathedral to maintain. Little can the chapter have foreseen, even in the middle of the sixteenth century, how quickly their great lease of power, secular no less than sacred, was to run out. But that strangely democratic movement the Reformation came, and the mightiest corporation of all was swept away in the storm. Happily the beautiful structure, unique in its almost complete preservation, has equally escaped the dangers of violence and of neglect. The western towers alone were "restored" out of existence. Joseph Robertson in 1849 and Macgregor Chalmers in 1914, both of them high students of mediæval architecture, have, with others, recorded their homage to the glories of the fane which rose through so many centuries over St. Mungo's shrine. The remarkable story of the rally of the crafts of Glasgow to the defence, when Reform counsels had persuaded the magistrates "to demolish the cathedral" in 1578, is discredited by the soundest local historians, and above all by Dr. Renwick, yet how circumstantial it is, recorded by a Protestant Archbishop of Glasgow who had been a student there in 1580.

In the development of civic spirit an indubitable factor had been the freedom of the city from domination by any of the greater baronage: for this the wide civil lordship of the bishops and archbishops themselves chiefly accounted. The general wisdom of the diocesan management equally tended to secure the community from external interference, and that security encouraged the growth of a communal faculty of government which was eager to seize the opportunity of asserting itself when the Reformation drove the Archbishop into exile. But the community profited little from the spoil of the fallen Church, which appears mainly to have gone to the University, the Earls of Lennox, and the Crown. Glasgow did not even become strictly a royal burgh until the charter of 1611 gave it that status, scarcely perfected until 1681, when the long coveted right to elect the magistracy was at last completely secured.

The last Roman Catholic Archbishop, James Beaton, found it necessary to withdraw to France, carrying with him the muniments of the see, part only of which returned. With the later auspices of the Cathedral under archbishops of the reformed faith there is not space to deal. The ties with episcopacy were severed by the Revolution in 1688. With this came to an end the official and spiritual hegemony which Glasgow had exercised over the West of Scotland for upwards of a thousand years. Few more attractive questions can be set to the historian than to ask him whether any tradition of that hegemony lives transmuted into the influence of Glasgow, social, municipal, religious, educational, and commercial on land and sea to-day!

## MUNICIPAL HISTORY AND ACTIVITIES.

By Sir JOHN LINDSAY, J.P., D.L., Town Clerk of Glasgow.

WHILE the origin of the oldest burghs in Scotland is unknown, and their early history obscure, no uncertainty exists as to the foundation of the burgh of Glasgow. As David I. granted to Bishop John of St. Andrews the site of the burgh of that name, and to the abbey of Holyrood leave to establish the burgh of Canongate, and as William the Lion conferred on the convent of Arbroath liberty to form a burgh on its lands, so the latter monarch granted to Bishop Jocelyn of Glasgow, between 1175 and 1178, the right to have a burgh at Glasgow, with all the freedoms and customs which any royal burgh in Scotland possessed. In 1190 a further charter obtained by this "gracious and complaisant" bishop, granted to him and his successors a fair at Glasgow, to be held for eight full days in July every year; and for more than seven hundred years "Glasgow Fair" has been unfailingly observed annually, though the object of its continuance and the manner of its observance have varied with the changes in the social and economic life of the country.

The city, being provided with church and market, went on its modest way till the middle of the fifteenth century. Then came the next epoch-making event in its history—the issue on 7th January 1450-1 by Nicholas V. of his papal bull for the establishment of a university. Teaching at first was carried on in the lower church of the Cathedral, but the new institution grew and prospered, and a separate building—the Auld Pedagogy in the Rottenrow—was probably used for college purposes. Again, within a few years, another removal was made to the east side of the High Street, where the new Pedagogy was erected (see Fig. 3). In 1573 the Town Council rescued the College from ruin by endowing it with all the kirk livings which had been granted to the city by Queen Mary. Rebuilt in 1636, the College remained in High Street till 1870, when the University was removed to Gilmorehill.

Coeval with the institution of the College the educational wants of the city were supplied by the grammar school, the regulation of which was the special care of the chancellor of the Cathedral. In addition to the grammar school other schools, known as "the mural schools," existed in the city and adjacent district to which the Magistrates and Council of the burgh claimed for centuries an exclusive right to appoint teachers. Included among these mural schools, to which reference is frequently made in the Council records, were the "sang school" or "music school," and schools for teaching what was sometimes called "Scots" and sometimes "English."

During the first hundred years of its existence as a burgh, Glasgow had a favourable opportunity of increasing its influence. Its overlords the bishops usually held high office in the state, and were possessed of sufficient influence at court to secure the community against external encroachment or oppression, while the varying conditions of the country permitted the internal organisation to develop. During the period of

Roman Catholic control the powers of the ecclesiastical authorities steadily expanded, and the municipality was entirely under their sway. In the confusion which ensued on the Reformation, the magistrates attempted to assert their independence, but the temporalities of the see, including the hereditary right to the nomination of the magistrates, and the regality and justiciary of the city, were reserved and disposed of by the Crown. Bit by bit certain privileges of election were conceded to the Town Council, but the last traces of ecclesiastical domination were not swept away till the year 1690, when a charter was signed by William and Mary, granting to the Town Council full power, right, and liberty to elect their provost, bailies, and other councillors. The loyal and enthusiastic support given by Presbyterian Glasgow to

FIG. 3.—Glasgow College, with Blackfriars' Church in 1669.

the Protestant Succession was thus rewarded with rights for which the citizens had striven for more than a century and a half.

So intimate in the early days were the relations of the Church with the city that had it really taken for its motto the inscription found in 1631, in conjunction with the arms of the city, on the Tron Kirk bell, "Lord let Glasgow flourische through the preaching of Thy word and praising Thy name," none could well have cavilled at the choice. Mr. MacGeorge, who made an exhaustive inquiry into the armorial insignia of Glasgow, says: "There can be no doubt that the emblems which now appear on the city shield were adopted from the seals of the bishops and archbishops of the see," but whether the inscription on the bell "was intended as a heraldic accompaniment to the arms, is by no means certain. It is possible it was meant only as one of those inscriptions so common on the bells of churches to indicate their use and

the objects for which they called the people together, and the great length of it seems to confirm this view"; and it would be equally objectionable to adopt the partially abridged version, "Let Glasgow flourish by the preaching of the Word," for this conveys a part only of the original idea. The motto, "Let Glasgow Flourish," is general in its terms, and to those who know will always suggest the omitted words. The arms of the city bear on the foundation by St. Kentigern, with certain details illustrative of incidents, real or imaginary, connected with the life of the saint. These consist of the bell the saint is believed to have brought from Rome; the twig or tree, emblematic of the frozen bough he kindled into flame; the bird he restored to life; and the salmon which brought the lost ring of the queen of Cadzow.

So long as Glasgow enjoyed its connection with the Cathedral and its ecclesiastical hierarchy, and all the advantages they conferred, it remained parochial in its interests. Such foreign trade as was open to towns on the seaboard or on navigable rivers was denied to it save to a trifling extent. The Clyde was a shallow stream which could be crossed on foot at low-water miles below the town, and the passage of anything else than boats was at all times obstructed at Dumbuck Ford and other shallows above Dumbarton. Ships of considerable size could always get up the river as far as Dumbarton. That burgh, in 1469, tried to prevent Glasgow from purchasing wine from a French ship in the Clyde, but the lords auditors of causes and complaints, to whom Glasgow appealed, decided that the bishop's burgh, in such a transaction, was acting within its rights, and Dumbarton was ordained to "desist and cease of sic wrangwise stoppin and impediment makin in tyme to cum." In 1590 an arrangement was come to between Glasgow and Dumbarton, whereby it was agreed that whenever ships or vessels arrived in the Clyde, or other waters or lochs in the west sea, with merchandise from foreign countries, Dumbarton should immediately intimate the fact to Glasgow, and the merchants of the two towns should thereupon buy the merchandise for the equal benefit of both. The actual extent of the city's shipping trade at this time is uncertain, but in April and May 1597 ten vessels are entered in the records as trading with Glasgow. Of these, six belonged to Glasgow, two to Pittenweem, one to Aberdeen, and one to Dundee. They could not come near Glasgow, so their cargoes must have been brought up the river in small boats. In 1609 there is reference in the Council records to a pier and port at Broomielaw, likewise orders are given against ballast being emptied there, and in the following year a proposal is made for "taking away of the sands stopping the schippis and barkis fra in cumming to the town." From that time till now the deepening and improving of the river has gone on, till to-day the harbour of Glasgow, with its vast docks and dozen miles of quays, is probably the most wonderful achievement of the kind.

The development of modern Glasgow began shortly after the Union of the Crowns. In 1611 James VI. made the city a royal burgh, and two years later added to it the lands of Rottenrow. It was not till the year 1800 that the next additions were made, the lands of Ramshorn,

COWAL IN ARGYL
SHIRE
PART OF

(Reproduced from Williamson's "Memorials of James Watt," 1856)

Meadowflat, and part of the New Green being annexed. Then, in the nineteenth century, small independent burghs grew up around it. The area of the ancient royalty is contracted along its southern base, and as this was the favoured locality for trading and commercial pursuits, buildings spread over the borders on each side. On the east side Calton was formed into a burgh of barony in 1817, and seven years afterwards another burgh of barony, that of Anderston, came into existence on the west. In the case of another populous district on the north-west—embracing the lands of the old barony of Blythswood—formation into a separate burgh was avoided by an Act of Parliament passed in 1830, which annexed it to the city. The burghs of Calton and Anderston, and likewise the barony of Gorbals, had each their own magistrates and special Police Acts till the year 1846, when the whole of these districts were included within the city. In 1872 and 1878 several suburban districts were incorporated. In 1891 the burghs of Crosshill, Govanhill, Hillhead, Maryhill, and Pollokshields, East and West, and several other residential districts; in 1896 the lands of Bellahouston; in 1899 the lands of Blackhill; in 1905 the burgh of Kinning Park; in 1909 the lands of Mosspark and Henderston; and in 1912 the burghs of Govan, Partick, and Pollokshaws, and several suburban districts were all amalgamated with the city. The population (which at the Reformation was only 4300, at the Union was not more than 13,000, at the first official census in 1801 was 77,385) had increased in 1901 to 761,712, and is now estimated to be 1,114,656.

Naturally the first and most important duty of the municipal government was the maintenance of order and the prevention of crime. The early system, under which the citizens kept watch and ward by rotation, though well enough adapted to primitive times, was, towards the end of the eighteenth century, found not to be effective for the preservation of order, owing to the steadily increasing number of the inhabitants of the town. In 1779 a body of police was organised and placed under the charge of a salaried superintendent; but the Town Council had no authority to levy an assessment for maintenance of police, and on account of financial difficulties the former practice had to be resumed. In 1789, by which time the population probably exceeded 50,000, the Town Council promoted a bill in Parliament for the extension of the city boundaries, the establishment of a system of police, and the levying of assessment. The views of the citizens were not, however, sufficiently advanced to perceive the benefit of such a change, and their strenuous opposition secured the rejection of the scheme. A rearrangement of the old system was then tried, the city being divided into four districts, and all male citizens between eighteen and sixty whose rents were over £3 compelled to take guard duty by rotation, thirty-six being on patrol duty every night. Meanwhile the population was increasing at the rate of about 1000 per annum, and by the last year of the century it became obvious that more effective police supervision was necessary. In 1800 the Town Council obtained an Act of Parliament whereby a regular system of police was established, and provision made for paving, lighting, and

cleansing. The extended city was divided into twenty-four wards, each of which was to be represented by a commissioner, and the Act was to be administered by the magistrates, dean of guild, deacon convener, and the twenty-four commissioners. As thus established, the duration of the police system was limited to seven years; but at the expiry of that period an amending Act was passed providing for the maintenance of the police for other fourteen years, and the better paving, lighting, and cleansing of the streets. The commissioners then for the first time got control of the Fire Department, the expense of which was to be borne out of the rates. Other continuing Acts were passed in 1821, 1837, and 1843, and by the Municipal Extension Act of 1846 it was provided that the Town Council should in future elect a Police and Statute Labour Committee for managing that department. Under the Act of 1877 the Police Board, as constituted by the Act of 1846, ceased to exist, and the management of police affairs was vested in the Magistrates and Council, who were under the Act of 1890 to be designated police commissioners. The system continued until, by the Act of 1895, the municipal and police government of the city and the administration of the several municipal trusts were consolidated in the Corporation, which is now the sole authority responsible for the management of municipal affairs. The administration of the police is now carried on under the Police Acts of 1866 and 1919, and the authorised strength of the force is 2247 of all ranks.

The privilege granted by William the Lion about the year 1175 of holding markets, and of exacting dues and customs from those frequenting them, has been exercised without intermission to the present day, and now the markets and slaughter-houses, as the results of that long experience, are not only of the utmost efficiency but thoroughly commodious. A wharf with slaughtering accommodation and chill-rooms is maintained at Merklands, where Irish and foreign cattle, sheep and pigs are landed and dealt with. The city owns separate markets for cattle, fish, vegetables, dead meat, cheese, and old clothes, and the debt on them is £493,022. These markets, wharf, and slaughter-houses are extensively used by traders and others from all parts of Scotland for the purpose of obtaining supplies.

Gas as a luminant was first introduced into the city in 1818 by a company which had been formed in the previous year. Another company was formed in 1843, and these two companies continued until 1869, under their original and amending statutes, to supply the city and neighbourhood. In the previous year the desirability of having the lighting of the city and its suburbs vested in the Corporation induced that body to open negotiations with the two companies for the acquisition of their works, with the result that a bill was promoted to authorise the proposed transfer, and it received the royal assent on 24th June 1869. The Corporation now supply with gas an area of 98 square miles lying within the counties of Lanark, Renfrew, Dumbarton, and Stirling, and extending from Dunglass Castle on the west to Chryston on the east—a distance of 15¾ miles—and from Milngavie on the north to Burnside on the south—a distance of

11¾ miles. Chemical works for dealing with residual products adjoin each of the three gasworks, and by its method of working the Corporation realises more for its chemicals per ton of coal than any other large gas undertaking in the kingdom. Electricity for lighting and power purposes is supplied under the Glasgow Corporation Electric Lighting Order 1890 and subsequent Acts. The capital expended on the gas undertaking is now £5,000,000, and on electricity plant £4,429,400.

Originally Glasgow depended for its water supply upon streams like the Molendinar and St. Thenew's Burn, and upon wells such as those at the Bishop's Castle and Townhead, the Lady Well, the well at the Little Dhu Hill and Arn's Well on the Green. In the early years of the nineteenth century these were supplemented by William Harley, who brought a supply from his house of Willowbank, in the Sauchie Haugh, and distributed it by carts throughout the city. He was superseded by companies who pumped water from the Clyde at Cranstonhill and Dalmarnock, and sent it through the city in pipes, while the Gorbals Company brought a supply by gravitation in pipes from the Mearns lochs and distributed it on the south side of the river. The city, however, obtained powers in 1855 to bring a supply from Loch Katrine in Perthshire, and the water was turned on by Queen Victoria in 1859. Glasgow's example in this enterprise has since been followed by most of the great cities of the United Kingdom, whose aqueducts far more than rival those of ancient Rome. Still later the level of Loch Katrine has been raised to provide a greater supply, the waters of Loch Arklet have been added, and powers have been got to impound the waters of the River Turk in Glenfinlas, and to increase still further the supply from Loch Katrine. The city now receives over 79,000,000 gallons of water per day, and the cost of the undertaking has been over £4,847,000.

In early times, with open fields in every direction, the inhabitants had ample space in which to roam, and little value would be placed on the preservation of vacant ground. The Old Green between the Broomielaw and the mouth of the Molendinar was by degrees disposed of in building lots, and the New Green was for a long time mainly used for grazing purposes. About the year 1810 more attention was bestowed on the laying out of the New Green as ornamental and recreation ground, and in the course of time considerable improvements were effected. With the increase of population and the spread of new streets, the Green rose in estimation, but its benefits were not shared to any considerable extent by the residents in the west end of the city, including those occupying the district annexed in 1830. An opportunity occurred in 1851 for having this anomaly remedied. A few of the influential citizens submitted to the Town Council a proposal for acquiring the lands of Woodlands, Kelvingrove, and Gilmorehill, and forming a park thereon. To this scheme the Council undertook to contribute £10,000 in consideration of the park being handed over for the benefit and behoof of the public. On these terms the first portion of the Kelvingrove Park was acquired, and subsequently various

additions were made. After the West End people had been supplied, those on the South Side put forward a claim for similar privileges. To meet this reasonable desire the Town Council acquired the lands of Pathhead in 1857, and there formed the Queen's Park. An addition to this fine park was made in 1894, when the adjoining lands of Camphill were acquired and the whole grounds were laid out on a uniform plan. At first the Town Council had managed the parks without any special powers, but in 1859 an Act of Parliament was obtained whereby the lands acquired for such purposes were to be kept up on specified conditions and maintained out of the rates. Since then several other parks both within and outside the confines of the city have been acquired, some by purchase and the others by donation. Among them are Bellahouston Park on the south-west and Alexandra Park on the north-east, with Tollcross on the east and Cathkin Braes and The Linn on the far south of the city. Lochlomond Park, which is situated on the banks of the loch of that name and the river Leven, and the Ardgoil estate at the junction of Loch Long and Loch Goil, are much frequented, particularly during the spring, summer, and autumn months, by the inhabitants of the Glasgow district for the purposes of holiday recreation—such as Sunday school treats, picnics, holiday camps, boating, and mountaineering. Provision has been made in most of the parks and recreation grounds for football, cricket, golf, tennis and bowling, whilst gymnasia and playing-grounds have been laid out and equipped for the use of the children. During the summer months musical entertainments are provided in the parks, and during the winter months musical performances are given in the Winter Garden on Glasgow Green and organ recitals in the Art Galleries.

The city's art collection was begun by the purchase in 1856 of the notable galleries of pictures brought together by Bailie M'Lellan, and for a generation the pictures remained in their original home in Sauchiehall Street. By the articles of association of the International Exhibition held in Glasgow in 1888, it was provided that any surplus should be transferred to the Town Council, to be applied in erecting and maintaining a gallery or museum of science and art, or otherwise in promoting art in the city. There was a surplus, and this, augmented by private subscription, was sufficient to enable the building of new Art Galleries in Kelvingrove Park to be partially proceeded with. The work was continued by the Town Council under the authority of an Act of Parliament, and the buildings, having been completed, now contain the various art, science, and industrial collections, which are the finest in the country out of London.

Towards the end of the eighteenth and the beginning of the nineteenth centuries tentative efforts were made to grapple with the evil of overcrowding of the population in slum areas. It was not, however, till 1866, when the inhabitants exceeded 400,000 and many districts of the city were in a very congested state, that the Town Council obtained parliamentary authority to remove several clusters of narrow closes and insanitary buildings, and to lay out the sites for widened streets and buildings on an improved plan. Under the Act

thirty new streets were formed and twenty-six were widened, 90 acres were cleared and rebuilt, model lodging-houses were erected, and other great improvements carried out. The working out of this improvement has had a most beneficial effect upon the health of the community, and has in many respects added to the amenity of the city. A further improvement was carried out under the powers contained in the Act of 1897 by the removal of other insanitary areas where the same conditions prevailed as in the original scheduled district.

At the present day the housing of the population is again the paramount problem, and the Corporation, like other authorities, has had to face a building scheme to provide something like 57,000 dwelling-houses for its citizens. This task, with the assistance of the Government, the Corporation has undertaken; and in these days of scarcity, both of labour and materials, plans have been approved and tenders accepted for 3846 houses at an estimated cost, inclusive of streets and sewers, of £4,159,336, and 354 houses of a temporary nature at an estimated cost, exclusive of streets and sewers, of £174,572; 264 houses are to be erected by "direct labour" with the co-operation of the Operative Building Guild, the Corporation supplying all the needful plant and material.

Street tramways were first introduced into the city under authority of an Act of Parliament passed in 1870. For many years the tramways were worked by lessees, but on the expiry of the lease in 1894 the Corporation took the whole concern under its own management. In 1898 an experiment in electric traction was successfully tried on the Springburn lines, and arrangements were then made, and shortly thereafter completed, for the supersession of horse haulage by the application of electric power through overhead wires to the tramways, the power being generated at Pinkston Power Station on the high-tension system, and distributed through six sub-stations. The cars are of the double-deck single-truck pattern, constructed to carry 62 passengers, and a very close service is given at fares which are the lowest in the kingdom. The total length of tramways now operated extends to 198¼ miles measured as single track. There are in all twelve tramway depots; and the workshops of the department, which cover an area of 27,683 square yards, are used for the making and repairing of the cars, etc. The storage yard, adjoining the workshops, covers an area of 18,432 square yards. During the past year the car mileage run was 26,459,015, the total number of passengers carried was 509,339,886, and the traffic revenue was £1,716,490, 16s. 8d.

As part of the sanitary administration of the city, the Corporation exercises a careful supervision not only of the health of the citizens, but of the food supply of the city. The adoption on 16th December 1895 of a systematic application of bacteriological methods in doubtful cases of infectious disease has greatly facilitated administrative action and materially lessened the risk of having persons erroneously isolated in the municipal hospitals or left in unrestricted freedom. The inspection and sampling of all milk, meat, fish, fruit, vegetables, etc., brought by road, rail, or sea into the city for human consumption is carried out

daily, and in all doubtful cases samples are sent to the Corporation chemist for analysis.

Six hospitals for infectious diseases have been provided, and another large hospital is being completed; yet the provision for the institutional treatment of such diseases, though ample, is not even now sufficient to meet every possible demand, and consequently the Corporation is giving earnest consideration to suggestions for the best means to adopt for increasing the accommodation. There are also two reception houses for the isolation of persons who have been in contact with infectious disease. The treatment of persons suffering from tuberculosis comes within the powers of the Corporation, and 842 beds in hospitals and 155 beds in sanatoria have been provided, while the cost of treatment of patients elsewhere has to be paid. An additional sanatorium is in the course of erection, and will shortly be completed. Thirteen separate centres for infants have been established, where consultations are regularly held. Five child-welfare centres or day-nurseries have been instituted; two country homes have been opened, and a third will be opened shortly, for the reception of young children suffering from malnutrition, etc.

The cleansing of the city and the removal and disposal of domestic and other refuse, as well as the sweeping and watering of the streets, is carried out by the Corporation. Portable dust-bins have now been substituted for the former ashpits, and are, within the central area, emptied daily, while those in the other districts of the city receive systematic attention. The refuse is treated at the various refuse destructor and despatch works by the separation of saleable from unsaleable material, —the former being disposed of to agriculturists and others, and the latter cremated: 422,000 tons of refuse are dealt with annually; and 1480 acres of land are owned, and 38 acres are leased for the purpose of providing an outlet for the unsaleable, though useful, portion of the city refuse. Much of this formerly useless land has now been reclaimed and transformed into a valuable agricultural subject, and that it is a successful branch of the work is shown by the combined profits on the farm cropping accounts for the past year, amounting to £9492. Since the start of the system no less a sum than £342,700 has been realised from the sale of the "refuse."

Until 1894 the Clyde was made the cesspool of the city, but in that year the first sewage purification works were opened at Dalmarnock, and shortly afterwards the works at Dalmuir and Shieldhall were completed. Now the sewage of the city and suburban districts is treated by chemical precipitation, the sludge being converted into manure, and the unsaleable refuse conveyed by sludge steamer beyond the three-mile limit and dropped into the sea, while the liquid, after being converted by chemical and filtering treatment into a colourless and innocuous fluid, is run into the river.

The Corporation has provided nineteen bathing establishments with facilities for hot, cold, and swimming baths, and at two of these Turkish baths are also provided. Other establishments are to be erected shortly. Laundries are attached to all the establishments, at which admirable

facilities are afforded to the public for washing and drying clothes. There are, in addition, three public wash-houses or laundries without bathing accommodation. An open-air swimming pond has been provided in one of the city parks, and is extensively used during the summer months.

Glasgow purchased its first steam fire-engine in 1876, and to-day has a completely equipped and thoroughly efficient fire-brigade system. The brigade consists of 195 officers and men, who are wholly devoted to the work of fire prevention and extinction. The city is divided for fire-protection purposes into ten districts with a fully equipped fire-station in each. These stations are connected with the street fire-alarms, the police-stations, and the telephone exchanges, so that the brigade can turn out in the average time for a day call of from 15 to 20 seconds, and for an over-night call of from 30 to 35 seconds. Each station is in direct telephonic communication with the central fire-station. The officers of the fire-brigade carry out a systematic inspection of all places of amusement. They undertake the inspection, under the local building regulations Acts, of the means of egress from all buildings exceeding 60 feet in height, and along with the Master of Works carry out a joint inspection under the factory and workshops Acts, and superintend any necessary alterations to give effect to their requirements in all cases where the means of exit are insufficient for the number of persons employed.

The lending and reference libraries of the city had their origin in a bequest of the late Mr. Stephen Mitchell for the establishment and endowment of a large public library in Glasgow. To-day, under the administration of the Corporation, the city is in this way thoroughly well equipped. The Mitchell Library is a reference library, containing about 250,000 volumes, and in extent, variety, and value takes rank with the chief reference libraries in the kingdom. There are twenty district lending libraries and reading-rooms established throughout the city, and four other district libraries are to be erected shortly. The Stirling's Library, which was recently taken over by the Corporation, contains, for reference, the publications issued by the Patents Office. The Commercial Library, which is located in the business centre of the city, contains a collection of information respecting all branches of trade and commerce, which is readily accessible to all persons engaged in commercial pursuits. Besides these there are other reference and lending libraries in the city.

Till 1891 the City Hall in Candleriggs, with accommodation for 3000 people, was the only considerable public hall belonging to the Corporation. In that year the public halls of several burghs annexed to the city were taken over. St. Andrew's Halls, in the west of the city, were next taken over from private owners, and others have been built in connection with the district libraries. Although the Corporation thus possessed twenty-two public halls suitable for the purposes of popular instruction, recreation, and amusement, in different parts of the city, yet till 1917 there was no hall large enough to provide floor-space for trade or other exhibitions. To meet this clamant need the Corpora-

tion erected a building at a cost of £47,000. This Kelvin Hall, which has an area of 200,000 square feet—a floor-space exceeding that of any other hall within the kingdom—was deemed to be more than ample to meet every expected demand, but already there are signs that it is proving to be inadequate, and the question of an extension is receiving consideration. Following upon arrangements made with the Board of Trade, a British Industries Fair was held, in conjunction with similar fairs in London and Birmingham, during August 1918. At its con-

Fig. 4.—The Trongate from the east, 1770, with the Tolbooth.

clusion the building was commandeered by the Government for war purposes as an army clothing depot, and possession was not regained till February 1919. Since then a British Industries Fair has been held annually, and each has successfully met the purpose for which the fairs have been instituted. During the periods when the hall is not so required, exhibitions of local industries are held for the purpose of furthering the interests of the trade of the city, and of educating the people in those industrial arts which are so essential a requirement to present-day civilisation. Carnivals are held at the two great holiday periods of the year which afford opportunities for the reasonable and

healthy enjoyment and entertainment of the working classes, of which they gladly avail themselves. All these enterprises are promoted and controlled by the Corporation, and have had the most gratifying result of meeting not only the initial cost of the building, but of showing a credit balance of £10,000.

As a worthy headquarters for all these institutions and activities the city has a noble pile of buildings in George Square. It is interesting to compare them with the old Tolbooth, at the foot of High Street (Fig. 4), and the northern part of the present County Buildings in Ingram Street, where the government of Glasgow was formerly carried on. The present buildings, with their stairways of marble and alabaster and their stately apartments of mahogany and satinwood, form one of the chief sights of the city. Their cost, with furnishing, was £551,378, and large extensions to them are now being made.

It is impossible, within the confines of this article, to give anything like an adequate account of the progress of the city, and of the full development of its municipal undertakings and enterprises; sufficient however has been cited from the facts of the past and the institutions and activities of the present to show something of the character, in bygone times and to-day, of the government of the city which now spreads for so many miles on both banks of the Clyde.

---

## THE RISE OF TRADE AND INDUSTRY.

By William Power.

The region in which Glasgow stands is one marked out by Nature for the site of a great city. It is flat or gently undulating; sheltered by mountains and forests on the north and north-west, and by moorland hills on the south; it enjoys a fertility of soil and an equability of climate that are remarkable in a position so far north-west; it is on the seaward edge of one of the richest coal-fields in Britain, with a plentiful mixture of ironstone; it is continuous with the central plain of Scotland, and, by a low pass, with the Ayrshire littoral, and has access by the upper Clyde valley to Tweedside, Annandale, and Carlisle, and by the Clyde itself to the West Highlands, the Irish Channel, and the Atlantic. Within such a region the most favourable point is that where the river is still easily fordable and navigation of a kind begins. This advantage was shared by three of the settlements that grew into towns—Rutherglen, Glasgow, and Renfrew (cf. Map 1). Dumbarton (Alclwyd), the ancient capital of Strathclyde, had a future as a naval stronghold and base, and as a shipbuilding centre, but its position some miles below the point at which the Clyde is bridgeable put it out of the running for civic greatness. Rutherglen was a shade too far up the Clyde; it was as an agricultural centre, with special burghal privileges, that it became in the Middle Ages the most important town in the south-west of Scotland. Renfrew, five miles below Glasgow, had an ideal position of

which, for a variety of reasons, it failed to take advantage. In any case, the matter had been predetermined in 543 A.D., when St. Kentigern, better known as St. Mungo, came from Culross and established a missionary station on the west bank of the Molendinar, about a mile from its confluence with the Clyde. For the see which he thus founded, and the cathedral which was erected in 1124 on the site of his cell, took their name from the British hamlet of Glasgow, beside which St. Kentigern had set up the Cross. Thus Glasgow was a city more than five centuries before it became known to authentic history, and nearly six centuries before it was erected into a burgh of barony. And the origin and progress of the city are set forth, with singular accuracy and appropriateness, in the patron-saintship of St. Mungo and in one form of the civic motto, "Let Glasgow flourish by the preaching of Thy Word."

To what extent the Word was preached during the centuries between the death of St. Kentigern and the restoration of the see under Bishop Achaius, the nominee of David, Prince of Cumbria—afterwards King David I. of Scotland—we have no certain knowledge. But the existence of a certain amount of trade may be presumed from the needs that led to the establishment by William the Lion of a weekly market and a yearly fair, and from the subsequent exemption of Glasgow from tolls levied by the royal burghs of Rutherglen and Dumbarton. Trade also was stimulated by the revenues in kind from the cathedral lands throughout the south of Scotland, by the extensive building operations in and around the cathedral from 1124 down to the end of the fifteenth century, by the founding in 1246 of a large monastery of Dominican or Black Friars, and by the residence in Glasgow of many prebends of the cathedral, and, later, of several of the West of Scotland nobility and gentry. All these causes are more than sufficient to account for a population of over 1500 at the time of the Wars of Independence, when the city became conspicuous through the battles fought in its streets and the part played by its Bishop, Wishart, in support of Robert the Bruce. A period of rather sleepy development followed, and the year 1450 finds Glasgow with a population exceeding 2000. In that year, "on account of the healthiness of the climate, the plenty of victuals and of everything necessary for the use of man," Pope Nicholas V. granted a bull founding Glasgow University, which within a year or two enrolled over 200 students. This was a highly important event in Glasgow's history, and it led to the elevation of the see into an archbishopric in 1488. In the period to the flight of Archbishop Beaton in 1560 the city reached the height of its floreation under purely episcopal ægis, attaining in that year a population of 4500.

Glasgow had definitely declared for Protestantism, and the beginning of its modern era of independent development, civic and commercial, was marked by the help it gave to the Regent Moray's army at Langside in 1568. The Letter of Guildry, defining the privileges of the Merchants and the Crafts, was agreed upon in 1605, and four years later the line of "patron" provosts—aristocratic nominees of prelate or king—came to an end. But the beginnings of modern trade date from far back in the episcopal period. The guild of masons is certainly

A View of Glasgow from the South West

coeval with the oldest stone of Glasgow Cathedral; eight out of the other eleven chief guilds received incorporation in Catholic times, and in each case association probably precedes incorporation by a century or more. Notably early incorporations are those of the skinners and furriers, who dealt with the skins brought in from the wide pastoral and forest regions to the north-west: and of the weavers and hammermen (smiths), who were laying the foundation of Glasgow's staple industries. But it is in commerce and not in industry that the beginnings of her modern developments are to be found. The association of merchants (at first including the professions and even the smaller gentry) is, if anything, older than that of the trades, and the true direction of the city's activities was indicated as early as 1201 by a society of fishers, which was formed at the Clyde end of the road leading down from the Cathedral. Boats of a kind had plied on the river since Neolithic times, and by degrees the salmon catches of the "fishers" began to be supplemented by herring brought up the river by "shy traffickers" from the firth. Skins, sheep, and timber also arrived in this way: and in return were despatched cloth, simple ironware, and possibly even coals, which were worked on the northern outcrops of the Lanarkshire field from about the fourteenth century. Until the end of the fourteenth century Glasgow's traffic was purely inland and riverine. But in 1450 we detect a cadet of the house of Elphinstone in the act of shipping pickled salmon and herring to France in return for brandy and salt. Fifty years later, Archibald Lyon, a son of Lord Glamis, came to Glasgow and opened up traffic with France, Holland, and Poland; his ships may have been among the Glasgow-owned privateers that caused trouble to the English fleet in the early days of Henry VIII. Glasgow was already a shipowning centre, though nearly three centuries were to pass before she could bring her ocean-going fleet up to the Broomielaw.

Poland and Scotland were brought in touch through a crucial contrast in regard to trade. In Poland the nobility would not, and the peasantry could not, engage in commerce; the Jews were called in to supply the lack of a trading middle class, and the Scots followed close on their heels, competing with them as pedlars and shopkeepers as far inland as Cracow. The Scots who went to Poland as pedlars were the educated sons of small farmers, among whom to this day the tradition of the "Scotch drapery trade" persists. In their own country they made their headquarters in the small trading towns, forming the lower ranks and afterwards the main body of the merchant class. But the upper ranks of that class were recruited from the nobility and gentry, who alone had the capital and influence necessary for overseas enterprise, in days when the ship and her cargo were one property, and every sea-going vessel was an unofficial part of the navy. In the Glasgow Letter of Guildry of 1605 it is laid down that the Dean of Guild must be a "merchant-adventurer," or shipowner—in other words, a "gentleman." The persistence, even in aristocratic England, of this peculiar prestige of the foreign merchant is quaintly exemplified by the tuft-hunting Major Bagstock's deference to Mr. Dombey. Down to the

end of the eighteenth century the West of Scotland lairds were sending younger sons into Glasgow to make fortunes for their families. A historic example is that of the Walkinshaws, who gave three generations of merchants to the city, and got back into the "county" in time to give an officer to the Old Pretender and a mistress to Prince Charlie.

Between 1600 and 1660 Glasgow prospered amain, doubling its population in fifty years. At the Restoration it was the second city in Scotland. A custom-house had been set up in 1601, and in 1656 Commissioner Tucker made a report on the city to the Commonwealth Government. "With the exception of the colliginors (collegians)," he said, "all the inhabitants are traders: some to Ireland with small smiddy coals [mined within two miles of the city], in open boats, from four to ten tons, from whence they bring hoops, rongs, barrel staves, meal, oats, and butter; some to France, with plaidings, coals, and herings, from which the return is salt, pepper, raisins, and prunes; some to Norway with timber; and every one with theyr neighbours the Highlanders," who bring by boat "pladding, dry hides, goate, kid, and deere skins," with which they purchase "comodityes." The "mercantile genius of the people" was hampered by the fact that cargoes had to be unloaded fourteen miles down-stream and brought up in boats of not more than six tons. The troubles of the Covenanting period caused a severe set-back; the population decreased by 3000 during the "killing times." But the trading energy of the people was growing. Before 1650 they had attempted trade with Barbados, but had been hampered by English embargoes. A new endeavour was made to evade these. It took the form of the disastrous Darien Scheme (1696-1700), in which Glasgow lost heavily in ships, money, and lives. But the Darien disaster led indirectly to the Union, and the Union gave Glasgow the opportunity for the most romantic adventure in her commercial history.

Of the Clydesdale Covenanters who had been transported to the plantations of Virginia, Maryland, and Carolina in the decade before 1688, the most had succumbed to ill-treatment and the climate. But some had prospered and acquired interests in tobacco plantations, and thus a direct personal link was established between Glasgow and the richest part of North America. When trade was thrown open in 1707 the Glasgow merchants chartered ships for the plantation ports, and with the proceeds of the voyages they built ships for themselves. The trade grew and grew, until by 1770 Glasgow was importing, spinning, and re-exporting much more than half the tobacco used in all Europe. One firm alone had transactions in a single year of over half a million. The "tobacco lords," with their scarlet cloaks, dominated and rebuilt Glasgow, bought up half the countryside, and were in a fair way to demoralise the nation by their wealth, when the American War brought the trade to an end. A year or two of distress and difficulty was followed by a healthier expansion of foreign commerce. The sugar trade with the West Indies more than made up for the loss of the tobacco trade. The Clyde was deepened for ocean traffic; merchants began to turn their eyes to the "gorgeous East," and in the first years

PLAN
of the CITY of
Glasgow
AND SUBURBS
FROM an Actual Survey in
1778
John M'Arthur
Surveyor
Engraved by Thos. Kitchin
and James Lyon
MDCCLXXVIII
GARDEN GROUNDS
RIVER CLYDE
HIGH GREEN
LOW GREEN
GORBELS
BARROWFIELD

of the nineteenth century Messrs. James Finlay and Company despatched a vessel of their own from the Broomielaw with a cargo for India.

Commerce in Glasgow was the mother of industry. It was the difficulty of the eighteenth-century tobacco lords in making up outward cargoes that stimulated manufactures in the city, and the stimulus increased as the inward cargoes became less profitable of themselves. Glasgow had always been famous for plaids, and a "swatch" of them was presented to the Princess of Wales in 1715. But woollen manufactures were never practised on a conspicuous scale. Flax-spinning, introduced in 1725, was for fifty years the staple industry; in 1780 there were 3000 looms in the Barony Parish on linen fabrics. Ten years later cotton had superseded flax, and the weavers were mostly engaged on muslins. The power-loom, and with it the factory system, were introduced in 1773, and in 1792 steam power was employed in Springfield cotton works. It was the steam engine that made modern Glasgow, enabling it at last to exploit the enormous coal-fields of Lanarkshire and the cheap labour from perennially distressed Ireland. The population doubled between 1801 and 1821, and by 1840 Glasgow rivalled Manchester as a cotton-spinning and weaving centre. The decline of the cotton industry was due to the development of more profitable industries — chemical works, calico-printing, distilling, potteries, and so forth—but above all the iron trades. Ironfounding had been introduced into Scotland in 1680, but the native ironstone was not employed till 1760, when the Carron Company erected iron furnaces and foundries near Falkirk. By the time these were connected by canal with the Clyde, a waterway had been made from Glasgow to the Monkland region, a few miles away, where great furnaces were set up at the pit-heads. Iron foundries and engine works sprang up in Glasgow at the beginning of last century, and, with the application of Neilson's hot-blast to furnaces in 1829, the production went up by leaps and bounds. But the most notable venture of all was the construction of the engine of Henry Bell's *Comet* in 1811, with which began the era of steam navigation in Britain, and Glasgow's major industry of shipbuilding. Thanks to the energy of David and Robert Napier, the genius of Watt and the enterprise of Bell had their fruition in making Glasgow the shipbuilding metropolis of the world.

Of the development of that great industry through the periods of wood, iron, and steel; of its accompaniment by great shipping and shipowning enterprises; of the expansion in all activities due to the growth of the railway system after 1831; and of the enormous work carried on around Glasgow in the way of steel construction, engineering, locomotive building—of these things it is not necessary to speak here, for they are treated elsewhere. What I have been concerned with is to indicate the gradual development of Glasgow from a cathedral town, "sleepy and slavish," into a busy commercial centre, and thence into a great metropolis of trade and industry. The natural factors in this development are apparent enough in the topography and geology of the Clyde valley. But the human factor is even more important. It was the courage, independence, and resourcefulness generated in the

Reformation and Covenanting periods that enabled Glasgow to recover almost at once from shocks like the Darien disaster and the American War of Independence, to overcome the natural obstacle of the Clyde shallows, to form an early partnership between science and industry, and, in the fulness of time, to take comprehensive advantage of her favourable geographical position. She has been, and remains, in every respect, the most versatile and virile of British cities. The severest test in all her history has yet to come—the gradual exhaustion of the Clyde coal-fields. How she will face it one cannot as yet even imagine. But it will not be in accordance with her traditions if she does not discover, and successfully apply, some effective substitute for the natural product on which for nearly two centuries her economic existence has seemed mainly to depend.

## THE PORT AND ITS DEVELOPMENT.

By D. M. Macintyre, M.B.E., F.C.I.S.,
Assistant Secretary to the Trustees of the Clyde Navigation.

The evolution of the great ports is of supreme interest to a Geographical Society. When such a subject is mooted we begin to think in continents; for ports are literally the doors of ingress from and egress to the uttermost parts of the earth. The great ports are formed to altruistic ends. Even those that are not conducted by Parliamentary Trusts are more of universal benefit than of private profit. Of public trusts the most important are the ports of London, Liverpool, Glasgow; of public companies, in the forefront is Manchester. By nature or necessity the position of a port is geographically selected. In the ultimate ends the ports embrace all geography, and relate themselves to all lands and peoples. Implicitly their motto is "I serve." In so far as that sentiment fails to find concrete expression they lose their universal usefulness and their own local soul. No service can be given by complacency. The "stand and wait" attitude is disastrous. In the evolution of a port apathy is atrophy; and development is rapid and orderly in so far only as it keeps pace with the times, and is directed by progressive men not afraid to be deemed heterodox. Given a suitable geographical position, populous environment, convenient industrial resources, and men of wisdom and daring to create and direct its affairs, the success of a port is assured and its purpose is served.

The essential conditions existed at Glasgow, albeit in embryo, and the result is seen to-day in the great port on the Clyde. In the development of the Clyde as a navigable river and of the port, there is, to the antiquarian and the patriot at least, an element of romance. At Manchester, for instance, all the pre-requisites were ready to hand for a port to come into being, and needed only the directing mind; for the making of a canal was less difficult than the deepening, widening, and straightening of a river such as the Clyde, begun, as it was, when

engineering skill was in its infancy. On the Clyde the factors were in their primitive state, and began, in degree, to evolve *pari passu*. The initial difficulties were, therefore, much greater, and were overcome intermittently only, as men of imagination and zeal came severally upon the scene.

In this connection it may be of interest to sketch briefly the early history of the efforts to foster trade to and from Glasgow. Direct trading by means of vessels does not seem to have found favour with our remote ancestors. The river was shallow and tortuous, with many flats, channels, and islands; and only a seer could prophesy that it would ever become navigable by the large vessels which the future was to bring forth. In the sixteenth century the port was Irvine on the Ayrshire coast, forty miles away, goods being brought to Glasgow by pack-horses. In the early part of the seventeenth century, however, the citizens began to arise out of their lethargy, and the flow of the little stream was often disturbed by voluntary workers who used various devices to scrape a passage for the keels of small craft. Charles the First, in recognition of those efforts, granted to the city, in 1636, a charter empowering the navigation to be improved from Glasgow to the Cloch, a distance of thirty miles, and dues therefor to be levied. Even for long thereafter the idea of making the river navigable to Glasgow had not dawned upon the pioneers. They tried to avoid the difficulty of dealing with the many fords by seeking to found the port to the west of Dumbuck Ford, fourteen miles from Glasgow. In 1658 the Town Council of Dumbarton was approached, with the view of forming the port there, but that historic town was afraid of the evil effects of the "influx of mariners," and lost its opportunity. Ten years later the Town Council of Glasgow bought thirteen acres of land at the village of Newark, four miles farther down on the opposite side, and there a harbour was formed, to be known as Port-Glasgow. At that time there was only "ane little key" at the Broomielaw—so small indeed as to warrant the vandalism of being repaired by timber from the "Hie Kirk or back gallerie." Port-Glasgow served its purpose for a time, and in 1762 boasted of a graving dock, the first in Scotland, constructed under the direction of the illustrious James Watt, and in 1812 became the birthplace of Henry Bell's *Comet*, and of steam navigation in Europe. The little quay at the Broomielaw was, however, the nucleus of the great port of Glasgow. There was not much progress in Scottish trade from the reign of Charles I., partly owing to political intrigue. By the Union with England in 1707, however, the colonies were opened up to commerce. Goods had still to be brought to Glasgow from the lower reaches in small craft; and a vessel of 60 tons was built on the Clyde which commenced the trade in tobacco for which Glasgow became famous. The advantages of trade were becoming apparent. Necessity was the mother of each little quay. James Watt was "still slumbering in the deep of time," and it was not until one hundred years later that there was any appreciable foreign trade with Glasgow direct. Except for tobacco and sugar, and possibly timber, the goods handled at the quays, in the beginning of the eighteenth century, were of local and

coasting origin. The dues payable at that time covered the use of the "Bridge, Key, and Cran," and seem to have been drawn at a venture. "Every boat of twelve tunns and upwards" had to pay 13s., but 6s. if belonging to a "freeman." Herring and ling boats paid 10s.—"the tacksman to have further two ling besides the dues of the boat." "Every potato-boat, two pecks of potatoes for the tacksman, and no other dues." "Every lump of butter 4 lib. *and above*, 8d." "Every boat full of coals of 12 tunns and upwards, 6s."

For the following thirty years trade made little progress. From 1755 onwards engineers were employed to advise upon the deepening of the navigation, which at some places had only fifteen inches of water. The first was John Smeaton, and it was not until after his report that the first Act of Parliament was obtained for a definite scheme of improvement from the Bridge to Dumbuck Ford. Thirteen years later John Golborne, of Chester, was consulted, and reported that even then the river was in a "state of nature," with not more than two feet of water at certain shoals. He recommended contraction by jetties and deepening by dredging. A year later James Watt confirmed that report as to the depth. The Town Council was impressed by Golborne's report, for in 1770 they got an Act to carry out his recommendations, instead of the method of locks or dams as advised by Smeaton. The same Act authorised the enlargement of the Broomielaw Quay and the construction of a quay on the South Side. Golborne, having been employed to carry out his ideas, constructed numerous jetties and walls, one of which, the Long Dyke, from Dunglass to Dumbarton, still stands, and with such success that in 1773 the depth at Dumbuck became, by natural scour, 7 feet, and vessels drawing 6 feet came up to the Broomielaw at high-water. He found, in 1781, that the depth at Dumbuck was 14 feet at low-water. In 1799, on the recommendation of John Rennie, walls were constructed to join up the ends of the jetties, the land thus reclaimed becoming the property of the frontager. Thomas Telford, also eminent in his profession, advised in 1806 the continuing of the system of parallel dykes adopted by Rennie. He states that in that year the *Harmony* of Liverpool, drawing 8½ feet, reached the Broomielaw. On his advice a towing-path was formed from Renfrew to Glasgow.

The Clyde was, one hundred years ago, still "a thing of beauty," but the commercial spirit of Glasgow decreed that it was not to be "a joy for ever." The navigation had now definitely begun to throw off the "state of nature" described by Golborne, and the merchants were beginning to see, as through a glass darkly, that the port and commerce were one and indivisible. We now comprehend that the earnest work of the citizens and their advisers has been of inestimable value not only to Glasgow but to the whole world. It can be said truly that, keen as a Glasgow shipowner or merchant may be, seldom has self-interest been put before the interests of the port.

The various early schemes for docks, in addition to riverside quayage, are only of local antiquarian interest. An important stage in the history of the port was reached in 1809, when an Act was obtained to

define the powers and duties of the City Council as administrators of the Common Good and as Trustees. The Council were empowered to convey to themselves, as Trustees, the dues authorised to be levied, and also the quay and harbour itself, on payment of the advances which had been made out of the Common Good, and of a price, to be fixed by jury, for the Broomielaw Quay, which was then about 400 yards in length, and the adjoining ground. The total was £19,324. By the Act the Trustees took over the responsibility of maintaining and improving the harbour and river, were to keep separate accounts, and were authorised to borrow £30,000. By 1810 they had borrowed £3300, the nucleus of the seven millions since borrowed.

When in 1766 James Watt conceived the idea of the separate condenser, nearly fifty years were to unroll ere the *Comet* should come

Fig. 5.—The Broomielaw, Glasgow, in 1813.

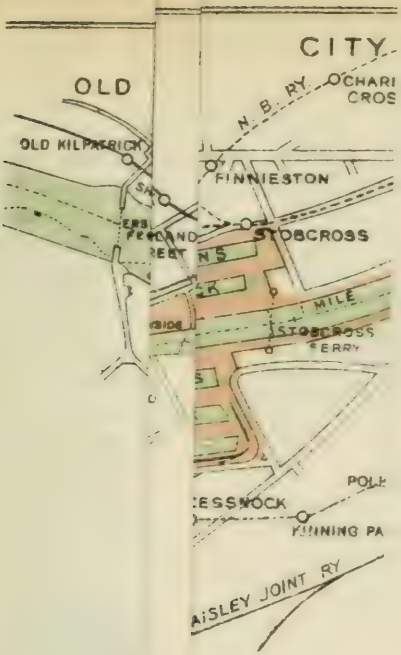
into being. Although in 1802 a steamer plied on the Forth and Clyde Canal, and in 1807 another on the Hudson, 1812 may be taken as the date of the introduction of steam navigation as a commercial proposition. The great advance in the development of the steamship had an immediate influence on the evolution of the port; for by 1818 there were several trading and passenger steamers plying to places on the coast. Thus a fresh impetus was given to the Town Council as Trustees of the river, and in 1825 they obtained additional powers for deepening and other works. A feature of special significance in that Act was that five persons interested in the trade of the Clyde, nominated by the Council, were added to their number as Trustees. Later we shall see how that policy was developed, and how wisdom has been justified of her children.

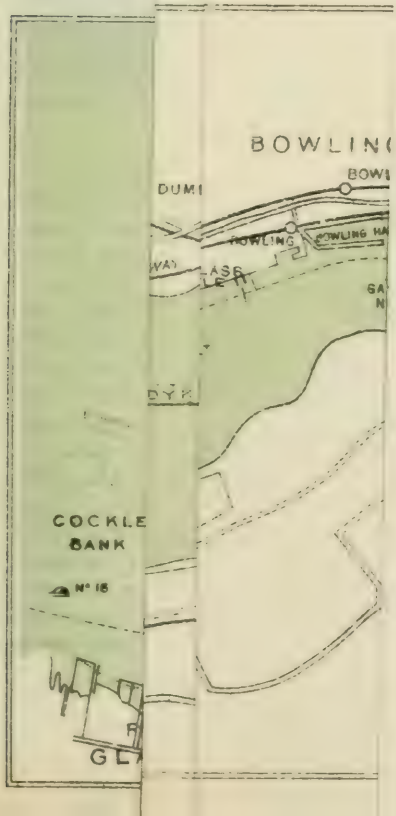
Until 1818 it is recorded that no vessel in the foreign trade had come up to Glasgow. The only impediment to the development of

commerce was the shallowness of the river; and even in 1836, when James Walker, the Consulting Engineer of the Trust, reported that the depth at Glasgow was from 12 to 15 feet, trade was confined to vessels of from 300 to 400 tons. What was the principal factor in the development of the Clyde? Given the Trustees, the merchants, tutored zeal, the possibility of ships coming into being, the wealth of "Ormuz and of Ind" awaiting shipment, the ore mines of Spain and the coal-fields of Lanarkshire, the one factor awanting was an adequate water-way. The discoveries in steam gave assurance that a shallow stream would no longer be a barrier. The dredging of the river has been the matrix not only of shipbuilding on the Clyde but of the port itself. The keel of the *Aquitania* in its passage down the river in 1914 passed thirty feet below the place at Dumbuck where the harrow and plough used to trouble the bed. Not only had shoals to be deepened, but islands had to be removed, competitive channels dammed up, and bends straightened. Dredging was done by hand and horse power until 1824, when steam-driven dredgers of 12 H.P., built of wood and dredging to ten feet, were introduced, the material being removed by punts and deposited on the banks. Diving-bells were provided in 1852 and 1861 to remove boulders. In 1862 hopper-barges, similar to those then seen at St. Nazaire, were introduced, for conveying the soil to deep water. The Trustees have now four dredgers capable of cutting their own floatation and dredging to a depth of forty-eight feet, and had, before the War, a fleet of sixteen hopper-barges. The effect of steam dredging was seen in increasing trade, but vessels were all berthed at the riverside quays. Owing to the number of shipyards on the upper reaches, various schemes were formulated for docks in Tradeston and Anderston; and although Kingston Dock, on the lands of Windmillcroft, was authorised in 1840, it was not opened until 1867.

The providing of Kingston Dock marked an epoch. At that time the total tonnage of goods imported and exported was 1,600,000, one-sixth of the tonnage in 1913. In 1867 there was a considerable number of sailing ships in the foreign trade; and Kingston Dock, with its sheds of 35 feet wide, soon became the haven where the wooden barques trading to the West Indies and Rio shipped their sugar-plant and cast-iron pipes, and the more modern ships filled up for Sydney. The process took many weeks. The Blue-Peter was shown only when they were full, and their departure was a public event. There was a considerable trade in ice from Norway. Schooners also, with china-clay and limeshell, found refuge in the little dock. The wharfage, which was of timber, was reconstructed of concrete in 1917.

In the years intervening until the opening of Queen's Dock on the lands of Milton and Stobcross, accommodation and trade did not advance *pari passu*. The liners, it is true, had their allocated berths, the Anchor Line at Finnieston, the State Line at Mavisbank, the Allan and City Lines, and Messrs. P. Henderson's steamers, at Plantation, the sailing ships of the Loch Line at Springfield. The tramp coasters, however, had quite often to discharge or load second or third off, and had sometimes to await a crane berth two or three weeks. The opening of Queen's


CITY
OLD
N. B. RY.
OLD KILPATRICK
FINNIESTON
STOBCROSS
MILE
STOBCROSS
FERRY
POLL
CESSNOCK
KILNING PA
AISLEY JOINT RY
FEET


BOWLIN
DUMI
BOWL
BOWLING
BOWLING HA
LASS
LEA
DYK
COCKLE
BANK
No 18
GL

OLD KILPATRICK
DALMUIR
YOKER
CLYDEBANK
NEWSHOT ISLE
WHITEINCH
PARTICK
CITY OF GLASGOW
GOVAN
RENFREW
DUMBARTON
LANGBANK
BOWLING
MILTON
PILLAR BANK
COCKLE BANK
FINNIESTON CHANNEL
SCALE 2-1 MILE
ENGINEERS OFFICE
GLASGOW JULY, 1920
P.D DONALD

Dock, and the completion of Stobcross Quay, on the site of shipyards and an old wharf, gave much relief. That the trade had developed faster than the accommodation is evidenced also by the fact that, with the exception of a small part of Plantation Quay, no berthage had been completed from 1867 to 1880, while the tonnage of vessels had increased by 2,000,000, and of goods by 1,000,000. Queen's Dock was not ready too soon. The Clan Line, which came into being about that time, the City Line, the Donaldson Line, and the Rangoon steamers occupied the whole pier, and Messrs. Hutchison's French steamers and other regular lines were berthed in the dock. Facilities were also given there for the loading of coal, which was previously done solely at the General Terminus by the Railway Company under an agreement of 1846, which is still in force.

The Trustees had, by their Act of 1858, become a reconstituted Statutory Body, and, besides ten councillors, two members were

FIG. 6.—Glasgow Harbour in 1839.

chosen by the Chamber of Commerce, Merchants' House, and Trades' House respectively, and nine were elected by the dues-payers. The Trustees were thus more than ever alive to the requirements of trade, and as early as 1870 began to purchase land at Cessnock in Govan, with a view to a large area being in their possession for a dock when such should become necessary. Indeed, certain lands were bought by individual members and transferred to the Trust at the original price. In 1883 a dock, to be known later as Prince's Dock, was authorised, and began to be used in 1890 by the Allan Line, and was completed, except for certain of the sheds, in 1897. While Queen's Dock (opened in 1880) gave 3334 lineal yards of quayage, Prince's Dock added 3737 yards. Its principal features are its piers and two-storey sheds.

In the ten years from the opening of Queen's Dock to the partial opening of Prince's Dock, the tonnage of vessels had advanced by 1,000,000, and of goods by 2,000,000, in converse proportion to the data mentioned for the period from 1867 to 1880. Prince's Dock was occupied as each quay was completed, and is to-day used by the

steamers of the Canadian Pacific Company, the Anchor-Donaldson Line, Furness-Withy, Maclay and McIntyre, and others. The South Quay is meantime set apart for the discharge of ore and the shipment of coal, but a goods shed is about to be erected.

The quayage at Stobcross, abreast of Queen's Dock, being inadequate for the increasing size of the liners berthed there, the Trustees in 1910 completed deep-water berthage at Yorkhill, on the site of a slip-dock and the timber-discharging wharf; and the new berthage, 1137 yards in length, is taken up wholly by the transatlantic steamers of the Anchor Line and those of Messrs. Holt to China and Vancouver. The sheds are 100 feet wide, as are those at Meadowside, where, in addition to the grain trade, Messrs. Holt's Australian trade is carried on. At those new quays and at Merklands Quay, where cattle are landed at lairage belonging to the Corporation, the depth is nearly forty feet at high-water.

Those quays described are the latest, but by no means the last, as will be seen. The ever-increasing size of steamers had set the pace for deeper quays and wider sheds. A pier which could accommodate three steamers on one side, when Prince's Dock was constructed, is now no more than sufficient for two; and a cargo discharged quickly, even into both storeys and on to the roadway, often overflows into the adjoining berth. The sheds of the future will certainly be designed to enable a cargo to be dealt with in the ship's length.

As three-fourths of the goods traffic of the port are carted for local distribution or to railway goods stations, the Trustees seek to provide for such traffic as near as possible to the city, and to concentrate rail traffic and goods for storage at the lower parts of the harbour. They are trying to pursue, as far as practicable, the policy of allocating and equipping quayage primarily for specific trades; and they find that this is conducive to economy and despatch. The overseas timber trade, for instance, was dealt with at Yorkhill, in the days when sailing ships brought whole cargoes, and storage was given on ground adjoining. The purchase in 1884 of 80 acres of land at Shieldhall—the nucleus of what has since become nearly 450 acres—provided suitable storage, and there the bulk of the timber is discharged and stored. Part cargoes of timber are still allowed, for the convenience of liners, at ordinary shed berths, and for such there is storage behind Prince's Dock. The timber trade has increased since 1880 from 76,000 to almost 350,000 tons a year, and the total storage area, with sheds for fine wood goods, is now nearly 60 acres. Shipment of coal, which, apart from the General Terminus, was done at Queen's Dock, has for the past thirteen years been carried on at Rothesay Dock also. The total tonnage of coal shipped in 1880, when Queen's Dock was opened, was 455,000, and before the War reached over 4,000,000. An endeavour is being made to confine shipment of coal, other than for bunkers, to Rothesay Dock. The trade in foreign ore is being dealt with similarly. That traffic increased so rapidly that, in 1882 and 1893, goods sheds at Springfield and Mavisbank had to be removed to provide cranage and tramway facilities; and this led the Trustees, in pursuance of the

policy mentioned, to form Rothesay Dock, where special berthage and modern appliances could be provided, and the berthage near the city conserved for goods traffic. This dock, opened in 1907, has a mile of quayage, and is fully equipped with coaling hoists and ore-discharging cranes all operated electrically. The ore traffic, which forty years ago amounted to 65,000 tons, reached in 1917 to almost 1,250,000 tons. With the object, similarly, of relieving the sheds of bulk grain, the Trustees, in 1904, obtained powers to provide stores and act as storekeepers; and in 1914 they opened Meadowside Granary, which is capable of storing 31,000 tons on floors and in silos, and is equipped with the most modern appliances, electrically driven, for the discharge, handling, and delivery of grain and flour. Of the whole imports of grain and flour (700,000 tons) last year the total quantity passing through the Granary was 202,740 tons, equal to seven times its storage capacity, and this will be increased by the additional discharging plant about to be installed. The Trustees have thus again justified their policy of concentration and special facilities in the interests of economy and for the fostering of trade. The bulk-oil trade was commenced with the construction by the Admiralty of a wharf near Bowling, and, also under an agreement with the Trustees, a public company have begun operations there at their own wharves. Other companies contemplate installations in the same vicinity. Facilities are given for shipping oil fuel at these wharves, and vessels may also receive bunker oil from oilers at their ordinary berths. Previously the imports of oil were only about 30,000 tons a year: whereas the quantity discharged at the Admiralty wharf since its opening two years ago was 550,000 tons.

In addition to assigned berthage for special trades, such as those of coal, ore, timber, and grain, there is the system of allocated berths, including two miles for coasters, for most of the regular steamers. This has not only contributed to rapid despatch, but is also a great convenience to consignees and shippers.

The Clyde being a centre for ship-building and ship-repairing, the Trustees have to provide for new vessels fitting out, and as those vessels, which often number over seventy at a time, require to be berthed where they can make use of the large machinery-cranes provided for them, they are accommodated at ordinary berthage. Certain of the shipbuilders have private fitting-out basins. The Trustees' graving docks, of which there are three, one of them 880 feet long, are in the centre of all this activity, and are equipped with pneumatic and electric repairing-plant. There are two docks in the vicinity privately owned, besides repairing-slips. For the repair of their own vessels and appliances, the Trustees have workshops at Renfrew equipped with the most modern electrical appliances, and having two repairing-slips.

The deep-water quays and all the facilities referred to would, however, be of little avail if the channel of the river had been neglected. We have seen that Golborne's work resulted in a depth of 14 feet at Dumbuck, and that the parallel-dyke system advised by Rennie and Telford had been effective, but nature unaided was too slow, and the

harrow and plough and other systems of hand-dredging gave place to the steam-dredger. Nature, however, was not only slow but recalcitrant; for rock was found which it seemed only a special mood of nature could remove. That was in 1854, before the advent of the barge-loading dredger. The rock was found at Elderslie, five miles from the city, by a steamer, the *Glasgow*, drawing 19 feet, grounding upon it. The obstruction occupied 925 feet in length of the river-bed, and its surface was 8 feet below low-water. The methods adopted were blasting and rock-breaking and removal of debris by dredging, with the result ultimately that in 1907 the rock was reduced to 28 feet below low-water. The bed of the river as a whole, which was, in its early state, a series of heights and hollows, has been gradually smoothed into the semblance of a bed, and lowered, throughout the whole jurisdiction of eighteen miles to Port-Glasgow, to the extent of 30 feet at the upper end, and of 26 feet at the lower, below low-water. The depth of the channel is 25 feet at low-water and 35 feet at high-water, so that, while the smaller vessels can navigate at any state of the tide, vessels which, not so long ago, took two tides in their passage, can now leave Glasgow about two hours before high-water, drawing 30 feet, and reach Greenock in one tide either by night or day, the river being provided with lighthouses and gas-buoys of the most modern kind. Widening of the channel has been effected from time to time, often involving the purchase of land much enhanced in value by the Trustees' own operations. It is this great work which, more than any quay facilities, has made the port what it is to-day, and has besides made it possible for shipbuilding yards to spring into being, capable of producing and launching huge liners and warships such as the *Aquitania* and the *Hood*. The reflex influence on trade has been most marked. Small vessels, which were legion forty years ago, bringing cargoes of a few hundred tons, are now but a memory. Steamers for Australia now leave with 12,000 tons under hatches, and only the other day a steamer arrived with 10,000 tons of wheat.

For the safe conduct of vessels to and from the sea, the Clyde Pilotage Authority have an efficient staff of pilots, and its affairs are administered on the most modern lines.

It is apparent that all the elements of progress have to operate concurrently if the full benefit of each is to be obtained. Mention has been made of the provision for specific large classes of cargoes, but it is the class of general overseas goods that gives the most trouble. For goods requiring cover there is on the quays a total shed-floor length of eight miles, varying from 55 feet to 100 feet in width. In those sheds there are handled about 700 different classes of goods, the chief of which are grain and flour, provisions, iron and steel, and wood goods. The cargoes are discharged by the shipowners and licensed stevedores, and are delivered to consignees by the shipowners and others as master-porters. Cranes are provided where necessary. In order to avoid congestion, the Trustees allow only a specified number of days for removal of goods, according to the size of the cargo, and thereafter impose quay-rent by way of inducing acceleration. Goods for ship-

ment are allowed to be laid down even before the vessel to load them arrives. For goods requiring to be loaded direct into railway wagons, there are at places, besides the mineral berths, tramway facilities connecting with the railways, the Trustees having for all purposes laid no less a length than 55 miles of single line. There are 130 cranes and hoists, steam, hydraulic, and electric, ranging up to a lifting capacity of 130 tons, and auxiliary appliances for moving wagons and weighing goods and minerals. For goods requiring to be conveyed across the river there are at the harbour three vehicular ferryboats and a tunnel, for which no charge is made, the cost being borne by the Corporation of Glasgow, who have made a provisional agreement to provide an opening bridge across the harbour at Finnieston.

The expenditure by the Trustees for capital purposes, since they became a separate body in 1809, exceeds £10,000,000, about 75 per cent. of which has been for land, quayage, dredging-plant, and dredging. The amount borrowed from the public, however, is under £7,000,000, of which £2,000,000 is irredeemable funded debt. The balance has been provided chiefly by surplus revenues, including the sinking fund. The available borrowing powers for works authorised amount to £3,000,000.

The revenue is derived from the dues levied under the statutory powers on vessels and goods and for services. The rates are as low as can be made consistently with the obtaining of revenue for the efficient administration and maintenance of the undertaking, and the providing of an adequate surplus to meet the sinking fund and give confidence to the public who lend their money. In 1770, when Golborne initiated the river improvement, the revenue was £147; in 1800 it was £3319; in the forty years to 1840 it had risen to £46,500; in 1880 it was £223,700; and in 1920 £1,077,998, having doubled since 1906. Of last year's revenue 65 per cent. was derived from dues on vessels and goods, and the remainder from cranage and other services. Of the revenue expenditure 55 per cent. was applied in ordinary maintenance, taxes, and management, and nearly 28 per cent. as interest on borrowed money.

In 1800, when the revenue was, as stated, £3319, the quayage at the Broomielaw was 382 yards in length. In 1880 it was $4\frac{1}{4}$ miles, and is now fully 11 miles, having doubled in the twenty-five years before the War. While the revenue in the last forty years has increased by 382 per cent., the length of quayage in the same period increased by 158 per cent., but it is, of course, of a character much superior to the quayage built prior to 1880; for, while the earlier quays were of timber and stone with sheet piling, the later quays are almost all built on concrete cylinders sunk, owing to the nature of the strata, sixty and seventy feet below cope level, and only in a few places are they on rock or boulder clay.

With regard, similarly, to the development of trade in the past forty years, the net register tonnage of vessels using the port has risen from $5\frac{3}{4}$ millions in 1880 to 13 millions, an increase of 126 per cent., and the tonnage of goods from 2,600,000 to 10 millions, an increase of

284 per cent. Of the total pre-War imports, ore, produce, and timber formed 70 per cent. Of the total exports, coal, iron and steel, and machinery formed 75 per cent. Of the gross total tonnage of goods, exports formed 60 per cent., while the foreign trade tonnage was 70 per cent. of the whole. Of overseas vessels last year the greatest tonnage was, in the order named, to and from North America, India, Spain, Africa, South America, France and Belgium, China and Japan. Of foreign imports last year (excluding ore) the greatest tonnage was, in the order named, of grain and flour, which was equal to 28 per cent. of the whole, oil, iron and steel, provisions, and timber; of foreign exports (excluding coal) iron and steel and machinery formed 47 per cent.

During the War the Trustees were fully engaged in the urgent task of providing accommodation for vessels loading munitions, and for the additional overseas vessels which were diverted to the port; and the difficulties were increased when the convoy system began, bringing a fleet of vessels at a time. There were also warships of every description to be accommodated while fitting out, and frequent visits of merchant cruisers for repair and revictualling. The graving docks were always full. The speeding up of iron-ore discharge was vital, and better despatch therewith was given than at any other port in the kingdom. The ordinary work of maintenance of the harbour had to lie in abeyance. Much of this work is now being carried out. The hydraulic power-plants at Prince's Dock and the graving docks are being renewed, and are to be wrought by electric current from the city. The hydraulic appliances at Queen's Dock are being superseded by electric. Contracts are at present in progress for the extension of electric lighting throughout the harbour. To accelerate the discharge of grain at the Granary berths pneumatic suction plant is about to be procured as an auxiliary to the two bucket elevators; and the provision of improved appliances for the more rapid discharge of ore is at present under consideration. Besides repair and renewal of appliances, certain quays required reconstruction. Plantation and Mavisbank Quays for a length of 900 yards are being rebuilt on a new line to provide more land space for wider sheds.

In furtherance of the principle, introduced in 1825, of having on the Trust members with local knowledge and conversant with the requirements of shipping and trade, the constitution was, in 1905, again altered to admit of a greater representation of traders, and of including persons chosen by the county councils and small burghs bordering on the Clyde. The number of members, which from 1858 was 25, was increased to 42, the members elected by the dues-payers being raised from 9 to 18. This policy has been fully justified, as there are included in the members men of technical skill, not only in trade and shipping but in constructional work and mechanical engineering.

The present Trustees, despite the great achievements described, are not resting content: for they are concentrating upon the arrangements to be made for development of traffic in the immediate future. The evolution of the port is entering upon a new cycle. The parliamentary powers which were obtained in 1911 and 1914 for the docks at Shield-

hall and the contiguous lands of about 450 acres, with two miles of continuous river frontage, westwards to Renfrew, have had to lie dormant during the War. The works, as provisionally designed, embrace seven basins set in echelon relatively to the river, and a graving dock, all capable of accommodating the largest classes of vessels likely to frequent the port. The new docks, which will shortly be commenced, will be provided with wide sheds and roadways and complete railway facilities, and will be equipped with the most up-to-date appliances for the rapid discharge, loading, and delivery of goods. The berthage will be allocated, in part, to the great liners, and the depth of water will be suitable for such vessels. The carrying out of the whole scheme will occupy many years, and will cost several millions of money, and when completed there will be five and a half additional miles of quayage. Provision will also probably be made for storage of special cargoes, such as grain and timber, and the shipment of bunker coal.

In whatever manner the port may evolve, the public may rest assured that the present duties will be performed by the Trustees with all the zeal and ability which have characterised their predecessors.

---

## GEOGRAPHY AT THE UNIVERSITY OF GLASGOW.

By Principal Sir Donald MacAlister, K.C.B., M.A., M.D., D.C.L., LL.D., D.Sc.

From Bologna the University of Glasgow inherited the division of its "supports" or students into "nations," according to the region or country of their birth. The Natio Clydesdalia (now Glottiana) included Lanarkshire; the Natio Rothseiana Bute, Renfrew, and Ayr; the Natio Albania (Transforthana) the remainder of Scotland north of the Forth; the Natio Theridalia (now Loudoniana) the Lothians, Border counties, and Galloway—and all the rest of the world! Loudoniana is thus cosmopolitan and world-wide. In 1919 it included some 200 students from outside the United Kingdom. They come from Africa (South, Central, West, and Morocco), America (South, Central, United States, and Canada), Australia and New Zealand, India with Ceylon and Burma, Egypt, the West Indies and other Crown Colonies, France, Italy, Spain, Portugal, Serbia, Rumania, Greece, Norway, Denmark, Poland, Russia, China, Japan, Korea, Mongolia, and the Philippines. The candidate who wins the support at the triennial election of a majority of the Nations becomes Lord Rector of the University and titular President of the University Court. In 1914 the then purely Scottish Nations united with Loudoniana in electing to that high office Raymond Poincaré, President of the French Republic.

The students of the University have thus international interests and an international outlook. Its schools of medicine, engineering and naval architecture, have a world-wide fame. The city has been for generations a centre of world-wide trade. Glasgow has sent forth

many who, as explorers, engineers, geologists, biologists, physicists, missionaries, and pioneers of commerce and of civilisation, have advanced geographical knowledge and shed light in geographical problems. But it was not until 1909 that the University Court made specific provision for teaching the methods and principles of Geography as a subject of higher education. A Chair of Geology, as a distinct province of "Natural History," was founded in 1903, and the first professor, Dr. J. W. Gregory, is himself a distinguished geographer. The physical basis of Geography was inevitably included in his courses of instruction. But both he and the Principal, who at Cambridge had been instrumental in founding the University School of Geography, were agreed that Glasgow University's arrangements were incomplete without a properly equipped Geographical Department. The subject had its historical, economic, ethnographical, and mathematical aspects, as well as its physical substructure ; it was related to more than one Faculty ; and the study should have its place in more than one department, and in more than one curriculum for degrees. The Scotch Education Department and the Provincial Committee for the Training of Teachers, moreover, in view of the demand for improved methods of geographical teaching in the primary and secondary schools of the country, were desirous of providing a fuller and more scientific course of Geography for school teachers, and of co-operating with the University to this end. The University Court, moved by these considerations, took two steps of importance. First, it joined with the Provincial Committee in appointing, as head of the new department, Dr. H. G. Lyons, F.R.S., who had just retired from the post of Director-General of the Egyptian Survey, entrusting to him the double task of organising a course or courses of University standard, and a course for school teachers not students of the University. Secondly, it sanctioned the addition of "Geography" to the list of subjects qualifying for graduation in Arts, and presently promoted an ordinance authorising the like addition to the prescribed subjects for the honours degree of B.Sc. in Pure Science.

Later on it arranged that advanced study and research in Geography should constitute, for research students and graduates, an avenue to the doctorate in Science (D.Sc.) and in Philosophy (Ph.D.).

Accommodation and equipment, of a simple but for the time sufficient kind, were provided, with the ready co-operation of the Professor of Geology. For two years Dr. Lyons carried out the onerous labour of shaping and organising the twofold scheme of geographical education. To encourage the schools, Geography was admitted as an alternative Science subject in the Bursary Competition for candidates in Arts or Science. Ordinary and Advanced or Honours courses were instituted as the students multiplied, and the lecturer was made an examiner for degrees. In 1911, Dr. Lyons, who in that year received the Victoria Research Medal of the Royal Geographical Society, was called to important duties in London in connection with the Society. During the War he served as Commandant of the Army Meteorological Services, was promoted to the rank of Colonel, and is now Keeper of the Science Museum at South Kensington. On leaving Glasgow,

his duties in the rapidly growing school were transferred to Dr. J. D. Falconer, a graduate of Glasgow and Edinburgh, who had won distinction as principal officer of the Mineral Survey of Northern Nigeria. Under him the numbers enrolled in the teachers' classes rapidly increased, until a point was reached at which, even with the help of assistant lecturers, it was impracticable to carry on the geographical department under the original joint arrangement. But the lines of work had by this time been wisely drawn, and the foundations soundly laid. It was easy to arrange for their separate development. The University department thereupon assumed the responsibility for graduate and post-graduate study, and the Provincial Committee appointed its own staff for the training of teachers in Geography regarded as a school subject. Then came the War; and Dr. Falconer's intimate knowledge of Nigeria became of special value to the Government. He was twice called away for administrative duty in West Africa: and he is at present acting as Assistant District Officer in Northern Nigeria. During his absences the work of the department was carried on with the friendly help of Dr. Marion I. Newbigin, Mr. James Cossar, and others acting under temporary appointments. In 1919 Mr. Alexander Stevens, M.A., B.Sc., who was assistant in the department before he proceeded with Sir Ernest Shackleton to the Antarctic in 1914, and thereafter served with the forces abroad, was appointed Interim Lecturer during Dr. Falconer's leave, and is now in charge.

That the course of instruction is comprehensive and thorough, and that Geography is at Glasgow no "soft option" for the undergraduate, will appear from the following syllabus, extracted from the current *University Calendar*:—

"**Ordinary Class.**—This class qualifies for graduation in Arts. Students who propose to offer Geography, either as subsidiary or as principal subject in the Final Science Examination, are also required to attend this class. The lectures will be devoted to the regional study of the Continents, Countries, and Peoples of the World, and to the establishment of definite Principles of Geography. Practical instruction will be given in elementary surveying; delineation of topographical features; map-drawing to scale; copying, reducing, enlarging, and measuring maps; interpretation of Ordnance Survey maps; construction and use of meteorological charts, distribution maps, etc.

"**Advanced Class.**—This is the qualifying class for graduation in Science when Geography is taken as principal or subsidiary subject. The work of the class will be divided into two parts. Part I. will include a special course of commercial geography, an advanced course in regional geography, and exhaustive study of a special continent or region, with accompanying laboratory work.

"In Part II. the work will be of a more specialised character, and will be divided up into various courses of study. The courses at present organised are (*a*) Trigonometrical Surveying and Cartography; (*b*) Hydrography and Climatology: (*c*) Topographical and Structural Geo-

graphy; (*d*) Anthropo-Geography. Only students who have taken Mathematics in their first B.Sc., or who are otherwise able to satisfy the lecturer of their knowledge of Mathematics, will be allowed to take course (*a*), while a similar knowledge of Physics, Geology, and Biology will be required of those taking courses (*b*), (*c*), and (*d*) respectively. Special papers and monographs will be prescribed for reading in connection with each course."

By 1913 the Glasgow School of Geography had already proved both its quality and its public usefulness, and efforts were in progress to place it on a footing commensurate with its importance as a branch of liberal education, by procuring for it a suitable endowment. In that year the city and University celebrated the centenary of David Livingstone, a Glasgow man and a Glasgow graduate. The proposal was made and cordially adopted, that among the local memorials to be established in his honour, as missionary, explorer, physician, and pioneer of empire, a Livingstone Chair of Geography in the University should be included. Perhaps because the effort was dispersed among a multiplicity of objects, the response to the appeal for a Livingstone Chair was meagre. The Court received and invested a sum of £400, as the "nucleus of a permanent endowment." It still holds that investment. The War and the Peace have diverted men's minds to other needs and other memorials. But the time must surely come soon when the special significance to Glasgow of geographical knowledge and research, and the reverence Glasgow owes to Livingstone's example and achievement, will impress its enlightened commercial leaders with fresh force. In that faith the University cherishes the "nucleus" of the Livingstone foundation for geographical study, convinced that Glasgow will not willingly let it die undeveloped. Since 1907 no less than fourteen new Chairs have been established in the University by private munificence; and most of them by their titles perpetuate to future generations the names of our benefactors. It would be supremely fitting if the University, which sought to honour Livingstone in his lifetime, should be enabled, by associating his name with the Chair of Geography, to set up an enduring and ever-fruitful monument to his great memory.

---

## OVERSEAS RELATIONS.

By A. Stevens, M.A., B.Sc.,
Lecturer in Geography in the University of Glasgow.

Although in origin an ecclesiastical city, Glasgow appears to have had commercial ambitions from the earliest times. Its monkish founders and early guardians took pains to promote the interests of its trade. It is not possible to separate the commercial history of the city from that of Clydesdale as a whole. In a sense it is true that the Clyde made Glasgow, but it is equally true that Glasgow made the Clyde. If

we are interested in finding simple and definite causes for the establishment of centres of population we shall find Clydesdale a region of sufficient extent and economic resources; but we must note that the city stands below the centre of the coal and iron districts, and well above the natural limit of navigation, and that it can hardly be called a "nodal" point at which a settlement existed from the earliest times: population was earlier grouped at other places in the neighbourhood, and the first settlement here was more or less artificial and ecclesiastical.

The incipient centre of commerce suffered from two disadvantages. Its river was useless even for primitive navigation, and its outlook was westward, away from the immediate direction of trade. For the early commerce the use of out-ports was necessary (cf. p. 43). But early trade was largely carried on with the Baltic and Channel ports, and we find that Glasgow obtained iron and dyes at first from Stirling and Borness. The main landmarks in the history of the trade of Glasgow are the opening and temporary closing of western markets. The opening of the English colonies to Scots merchants at the Union of 1707 turned one of the early disadvantages into an advantage: the revolt of the colonies of North America caused Glasgow to turn inward and take stock of her capabilities, develop her resources and industries, and become a manufacturing centre. This reacted on her commerce, and caused it to alter in nature and increase many hundredfold in amount.

It is curious to observe how scanty are the records of the achievements of Glasgow men in exploration and the opening up of new markets. Scotland as a whole took little direct share in the great voyages of discovery which began in the sixteenth century. As an individual the Scot was already ubiquitous, but his achievements have largely gone unrecorded, and it is only, as it were, by accident that we learn that John Cunningham held commands in the Danish service in two voyages in search of the lost colonies of Danes in Greenland. In three large projects Glasgow had a share. The first was an attempt on the Greenland whale-fishing, made in connection with the soap works established in the city in 1667 by a company of "nine persons of distinction." The nine contributed the surprising amount of £15,000 sterling each (£135,000 in all), and had the *Lyon*, 40 guns and 700 tons, built at Belfast, together with the *George*, and either two or three other vessels which they fitted out for the fishery. The project was disastrous: ships and gear were lost, and a very promising venture nipped in the bud. The next was the Darien Scheme, to which the Corporation of Glasgow contributed £3000, and possibly £1000 more, while all the merchants probably invested heavily. In 1695 the city had risen from eleventh to second place in the list of Scottish burghs, and was consequently able to make a very large contribution. The last convoy left Rothesay in 1699, and the disaster occurred shortly after. The blow was a staggering one for the city, but her elasticity was such that she recovered in a remarkable way. The third began with the great meeting held in Glasgow after the funeral of Livingstone. Local missionary enthusiasm was aroused, and "from the missionary loins" sprang the

African Lakes Trading Corporation, to which is due in great measure the credit of exploring and opening up to trade the regions between the Zambesi and Lake Tanganyika.

The first traveller on whom we have been able to light is William Lithgow. He was born at Lanark in 1582, and served his apprenticeship to travel in Shetland, Bohemia, and Switzerland. In 1610 he left Paris on foot for Palestine, visited on the trip Tunis, Algeria, and other parts of North Africa, and returned by Hungary and Poland. From 1619 to 1621 he travelled through Ireland and Spain, and at Malaga was tortured as a spy. His work was published in part in 1619, and complete in 1632: *The Totall Discourse of the Rare Adventures and Painfull Peregrinations of long Nineteen Yeares.* The book is now very rare.

After the two centuries of stagnation in African exploration we find Alexander Gordon Laing in Sierra Leone. His mother was a Glasgow lady, though his father was from Edinburgh. As a young army officer he went to the West Indies in 1811, but in 1822 was exploring the Rokel River and parts of the interior of Sierra Leone. His famous journey from Tripoli by Ghadames and Tuat to Timbuktu and the Niger was cut short by his murder after leaving Timbuktu in 1826.

James Macqueen, born at Crawford in 1778, in 1796 was in Grenada managing sugar plantations, and made repeated voyages to all the West Indian colonies. In 1799 he became interested in the Niger through reading the travels of Mungo Park, and proceeded to collect information by questioning negro slaves, merchants, and slave agents about the upper course of that river, and came to the conclusion that it entered the sea in the Gulf of Guinea. He returned to Glasgow, and in 1821 helped to start, and at first edited, the Glasgow *Courier*. He published his accounts of the West Indies, and also his views on the Niger, and stimulated the Landers to exploration upon it. They made the voyage down the river for the first time, from Bussa, and with M'Gregor Laird of the Glasgow shipping people (born at Greenock, 1808) made an expedition for the opening of trade on it in 1854. Laird was also a partner in the initiation of the British and North American Steam Navigation Company, which ran across the Atlantic the first steamer that did not depend primarily on sail. He also founded the African Steamship Company, sailing up the Niger.

We may pass over the well-known achievements in Africa of David Livingstone to those of the missionary enterprise which continued his work. This was begun by way of the Shiré River and Lake Nyasa by the famous Dr. Laws of Aberdeen, and was largely financed from Glasgow. So also was the campaign of Dr. James Stewart, a medical graduate of Glasgow, who was in the field with Livingstone, and later explored Lake Nyasa. This missionary work had its commercial side in the African Lakes Corporation. Livingstone had ever an eye to the commercial possibilities of a region, and with a prophetic vision saw rich fields of cotton flourishing where the Arab slaver brought desolation to the land. To the Moirs, Fotheringham, and others, the Scottish servants of the Company, is due the opening up of the vast tract to commerce, the destruction of the slave traffic, the conversion of the

natives to peaceful pursuits, the development of the cotton and coffee plantations, and the production of oil and fibre. The Nyasa territory of the Company was acquired by the British South Africa Company in 1890, and its bank was absorbed by the Bank of South Africa; but it still carries on its operations in the Tanganyika Territory by the Shiré-Nyasa road, and its dividends before the War were well over 10 per cent. Sir William Mackinnon, who was also a pioneer in India, is likewise important in relation to Africa. Born in Campbeltown in 1823, he spent some time at the grocery trade there, and then came to Glasgow. Here he was first in a silk merchant's, later in the employ of an East India trader. In 1847 he went to Calcutta, and with one ship started a service between Calcutta and Rangoon, from which he developed the British India Line of steamers. In 1873 he initiated a service to Zanzibar and Aden, and in 1878 he gained the confidence of the Sultan of Zanzibar, and obtained from him a lease of 1150 miles of coast, and territory stretching inland to the Congo Free State over an area of 590,000 square miles, and including the Great Lakes from Victoria and Tanganyika to Nyasa. The Government refused to back him, on account of German activities, and what became German East Africa was lost to the Empire. Later he promoted the Imperial British East Africa Company with a lease of 150 miles of coast, including Mombasa, within which he abolished slavery, monopolies, and unequal treatment for the different nationalities in the field, but he was much hampered by subsidised German competition. He took a great interest in Stanley's expedition for the relief of Emin Pasha, raised more than half its cost, and generally pushed its interests. Till its failure he was a director of the City of Glasgow Bank, and at the crash was sued for nearly half a million, but was discharged of the liability, being shown to have no responsibility for the misfortune.

To Asiatic exploration, and particularly to the staff of the East India Company, Glasgow contributed several great men. James Macrae, the runaway son of an indigent washerwoman of Ayr, was Governor of Madras in 1725-50, and presented a statue of William III. to the city. Another Governor of Madras, and traveller in India, was Sir Thomas Munro, born in 1761, the son of a Glasgow Virginia merchant. After studying at the University, he joined the ranks of the Company's forces at Madras at the age of nineteen, rose rapidly, and was regarded as a very efficient servant of the Company. It is interesting to note that, when the city of Glasgow was fighting the renewal of the monopoly of the Company, he was strongly in favour of its renewal. Colin Campbell, Lord Clyde, may be mentioned also, if not as an explorer, at least as one who made a solid contribution to the stabilisation of British rule in India.

Of great interest is the work of George Bogle, a native of Bothwell (b. 1746), and alumnus of the University. He was an energetic servant of the East India Company under Warren Hastings, when the Bhutanese encroached on Cuch Behar in the north of Bengal. After their expulsion the influential head of a Thibetan sect, the Tashi Lama, acted as peacemaker, and Bogle was sent as head of a mission in 1774-75 to open

negotiations with a new ruler of Bhutan, and to establish commercial and friendly relations with him and with the Lama. He travelled by Cuch Behar and Buxa to Bhutan, where he was detained for a time by the Deb Raja or ruler. Eventually he was suffered to proceed, and went by the head of the Chumbi Valley into the valley of the Upper Brahmaputra or Maghang Tsanpo, on the north side of which he found the Lama. Their relations were very friendly, but Chinese influence at Lhasa defeated the main purpose of the mission, and Bogle returned to Bhutan, where he was able to arrange for the passage of goods, but not of European merchants, through the country. Two more missions to Bhutan followed under Dr. Alexander Hamilton, who had accompanied Bogle, and in charge of a fourth Bogle again penetrated Thibet in 1779. But he found that the Lama had gone to Pekin, where he shortly died, and Bogle died soon afterwards. The last mission of this series reached Thibet in 1782 under Turner, a relation of Hastings, but it was also unsuccessful commercially: and the recall of Hastings in 1785 brought the series to an end. Bogle was the first Westerner to enter Thibet, but the valuable information collected by him and Turner lay buried until published by Sir Clements Markham after the lapse of a century.

Claudius Buchanan, of Cambuslang (b. 1776) and the University of Glasgow, is said to have left Scotland to fiddle his way through Europe, but got no farther than London. He took orders at Cambridge, went out as a chaplain to the East India Company, became vice-provost of a new college established under Wellesley at Fort William, and took a great interest in the education and general enlightenment of the natives, which was discouraged after the departure of Wellesley. He made extensive tours on two occasions in south-west India, but was prevented by his engagements from indulging in missionary work. On returning to England, however, he excited interest in the state of the natives, and is the father of all that has since been done in missionary and educational work.

Turning to Asia generally, we come on the interesting figure of John Bell of Antermony in the parish of Campsie, where he was born in 1691. He belonged to a family long connected with Glasgow, being descended, according to the long pedigree given by McUre, from Archibald Lyon of the house of Glamis, "the second promoter of trade here," who made a fortune in trade in the city. He was a student at the University, and went to Russia in 1714. As surgeon he accompanied an embassy to Ispahan in 1715, went with another through Siberia to Pekin in 1719, and in 1722 accompanied the army of Peter the Great to Persia. About 1734 he was in Scotland, but in the same year he had set up as a merchant in Petersburg, and started with a mission to Constantinople, sent in 1737 by the Russian Chancellor and the British Ambassador at Petersburg. Eventually he returned to this country, and in 1763 an account of his travels was published in two quarto volumes by R. and A. Foulis, the famous early printers of Glasgow. The book, *Travels from St. Petersburg in Russia to Divers Parts of Asia*, was written in the style of *Gulliver's Travels*.

The Clyde Valley made two notable contributions to the later

exploration of Australia. John McKinlay was born at Sandbank in 1819, and at the age of seventeen went to New South Wales to his uncle's sheep station. He took up land near the South Australian border, and became known as an expert bushman. The search for the lost exploring party under Burke and Wills was in full swing, and in 1861 McKinlay was sent out on the quest by the South Australian Government. He settled the Lake Torrens question, and followed Gregory's trail to Cooper's Creek, near which he found the remains of a European and some relics. This was Gray, one of the lost party, but at first McKinlay thought it was one of the leaders. A note, which he found later, told of the recovery of King, the only survivor, by another party, and of the fate of Burke and Wills, and he proceeded on the second part of his programme, which was exploration in the interior towards Eyre Creek and Central Mt. Stuart. His first new discovery was the Mueller River, and he pushed north over quite new country, finding new lakes, streams, and ranges, and was much troubled by floods, of which the aboriginals had warned him, but in which he found difficulty in believing. He seems to have struck the Leichardt River, and to have seen, but not reached, the Gulf of Carpentaria. Disappointed of expected relief on the coast, he turned eastward and reached Port Denison in Queensland in dire straits, having eaten most of his animals, but with all his party safe, in September 1862. He made a second journey in the Lake Carpentaria region later, but was much hampered by a wet season.

The cross-continent journey was made in the opposite direction by William Landsborough, born at Stevenston, the son of David Landsborough the botanist. Having emigrated to Australia, he was first a squatter, but took great interest in travel, discovered Nebo, and explored the Peak Downs, Fort Cooper, and Nagoo in Queensland in 1860. In 1861 he explored the sources of the Thomson River, and surveyed the Gregory and Hubert Ranges. Appointed to the charge of a search for Burke and Wills, he made a preliminary trip of 200 miles from the Albert River towards Central Mt. Stuart, and in 1862 crossed the continent, discovering many rivers and much good country, but doing little in the way of searching for the missing explorers.

Among the crowd of Scotsmen who were employed by the Hudson Bay Company we have failed to light upon any from Clydesdale. William Alexander of Menstrie, Earl of Stirling, a student of Glasgow, had a grant of "Nova Scotia" from James I. This is the first mention of the name, and the occasion on which the distinction from New England was made; but the French were at the time in occupation, and no effort seems to have been made to dislodge them. Another Glasgow alumnus, James Dalrymple, was made a Nova Scotian baronet by Cromwell, but he does not appear to have taken any advantage of the Protector's real if brief seizure of the country. James McGill, the founder of McGill College, was born in Glasgow in 1744, and engaged in the North-West trade with the North-West Company founded by Simon McTavish of Montreal. Alexander Wilson, the Paisley weaver and ornithologist, emigrated to New Jersey, where he was weaver, pedlar, and teacher by turns. In his pursuit of bird-lore he made a trip down the Ohio

in a canoe, and a painful overland journey through the Lower Mississippi Valley to New Orleans. A turbulent Irishman, James Macsparran, took a Glasgow degree, and then went as a missionary to Rhode Island. America cannot have treated him kindly, for he wrote a work, *America Dissected*, in which he issues a solemn warning to unsteady folk not to emigrate because of "bad climate, bad money, danger from enemies, pestilent heresies."

Many of the emigrants and troublesome deportees to the West Indies were Scots, and there was an early trade of considerable amount between Glasgow and the islands; but there is little to be learned about its pioneering. James Macqueen, we have seen, did his travelling here, and another voyager was Michael Scott, author of *Tom Cringle's Log* and *The Cruise of the Midge*, which are full of descriptions based on his observations. Born at Cowlairs, and educated at the High School and the University, he became manager of estates in Jamaica. In 1810 he took up business in Kingston, and did much travelling by sea and land. He returned to Glasgow, where his father was a merchant, and was in business there after 1822.

Of Polar explorers we need only mention Sir Joseph Hooker, of Sir James Ross's expedition to the Antarctic, who visited also New Zealand, Tasmania, India and the Himalaya, and the Western United States. To Lamont of Knockdaw Castle on the Holy Loch is due the removal from the Admiralty Charts of much mythical detail of the Barents Sea. He visited many of the sounds of Spitsbergen, including the difficult Wybe Jansz Water, in his frail yacht *Gaeeria*, and made geological collections and valuable notes on the fauna. He cruised north in two seasons, and with Sir Martin Conway and his parties made the main British contributions to the geography of Spitsbergen.

We shall look at the foreign trade of Glasgow under three natural heads: first, the period prior to the Union of 1707; then the interval between that and 1775, the date of the beginning of the American War of Independence: third, the modern period, which begins at that time.

*Early Period, till 1707.*—Except for slight effects due to the stimulus given by the Union of the Crowns and the short period of free trade during the Commonwealth, the commerce of Glasgow continued till 1707 in its limited primitive state. There was probably some manufacture of coarse woollens, chiefly for home consumption, as suggested by the name "Fullers' Gate"; but the finer fabrics and articles of manufacture were imported from England and France. Gibson states that the city had some maritime importance in 1546 (p. 203), when Scots vessels engaged in privateering against the commerce of England. The year 1567 is mentioned as remarkably successful for the fishing, and the export to Rochelle of herring is given as 1700 lasts of 12 barrels each. By 1597 there is a record of six vessels belonging to the port, of tonnage from 21 to 92, and totalling 280, and wine and timber (from the Highlands) are mentioned as articles of trade (Marwick, p. 44). The period from 1630 to 1660 seems to have been prosperous, and trade seems to have increased up till the time of the Union. McUre states that one Walter Gibson chartered the *St. Agat* of Holland,

*Facies Civitatis GLASCOV ab Austro. The prospect of the Town of GLASGOW from ye South.*

450 tons, loaded her with 300 lasts of herring (12 barrels to the last), costing £6 sterling per last, and disposed of the cargo for a barrel of brandy and a crown per barrel at St. Martin's in France. The return cargo was salt and brandy, and sold for such a sum that Gibson bought the ship and two other large vessels, with which he carried on a large trade with "France, Spain, Norway, Swedland, and Virginea." He is said to have been the first to import iron direct to Glasgow, earlier supplies having come with dyestuffs from. Stirling and Bo'ness (McUre, p. 167). There follows a list of over a hundred trading to "Virginea, Carriby-islands, Barbadoes, New England, St. Christophers, Monserat . . ."

*The Tobacco Period, 1707–1775.*—Although at least the commonalty of Glasgow was sufficiently opposed to the Union to indulge in rioting, the merchants were very much alive to the value of the colonial trade. By the beginning of the eighteenth century the manufactures were coming into being. Soap works had been established in 1667, sugar-boiling works in the same year. Tanning, making of green bottle-glass and of ropes, and brewing, were old-established industries. Printing in Glasgow dates from the seventeenth century. Trade was on a firm footing, and the merchants were in a position to exploit the new markets without delay. In 1707 a company of merchants hired a ship of Whitehaven, loaded her with merchandise in charge of a supercargo, and sent her out to Virginia. The plan was to exchange the outward cargo for tobacco until a full cargo had been accumulated, and then to return whether the exported goods had been exhausted or not; and this was the general plan of the early Virginia trade. It was safe, returns were rapid, and the traders were generally so frugal in their methods that they were soon able to oust the English from the French market, and even to undersell them in their own towns. For a time English vessels were employed exclusively, but by 1718 Glasgow owned ships engaged in the American trade, and had begun to be considered a port of no mean order.

The English traders naturally did not welcome the competition of the Scots, and in 1721 those of London, Liverpool, and Whitehaven presented a petition to the Lords of Treasury complaining that the Scottish merchants were guilty of defrauding the customs. After inquiry the court refused to discuss the cause, finding "that the complaints of the merchants of London, Liverpool, and Whitehaven were groundless, and that they proceeded from a spirit of envy, and not from a regard to the interest of trade, or of the king's revenue." The matter was now raised in the House of Commons, and a commission sent north to investigate reported in 1723. The replies of the Glasgow merchants are said to have been overlooked, and new officers to have been appointed at the ports with private instructions to harry the trade out of existence. Law-suits and other vexations followed, and the import of tobacco languished until 1735, when it recovered slowly.

New methods were now adopted. The old supercargoes were superseded by agents on the American coast, and these, in their anxiety to secure the trade in spite of English competition, furnished the planters with credit on the security of the growing crops. But competition soon

made the credit unlimited, the trade became speculative, involved the sinking of much greater capital, and a year and a half were required to get returns. A consequence was that the debts to Glasgow at the time of the Declaration of Independence were extremely heavy, and the loss of capital to the city was staggering. Nevertheless the volume of the trade waxed greatly, and in the year before the war it reached its maximum of 57,143 hogsheads, or about 57 million lbs. In the year 1771-72, according to Gibson, the total import was some 46 million lbs., and the re-export of unmanufactured tobacco was nearly 44 million lbs., with 10,000 lbs. manufactured. In the following year it is stated that of the 90,000 hogsheads imported into the United Kingdom, the share of Glasgow was 49,000. Three-fourths of the import came from Virginia.

During the tobacco period the manufactures of the city increased greatly, and those already existing expanded: to wool and linen spinning and weaving, the manufacture of cotton was added, and bleaching and printing on fabrics was developed. Iron, brass, and copper work began, delf and stoneware, brushes, furniture, and saddlery were made. Gibson (p. 203 *et seq.*) gives a very full and satisfactory set of statistics for the year 1771-72. According to him there were 67 "ships, brigantines and sloops" belonging to the Clyde. Of these, fifteen were engaged in the Virginia trade, four sailed to Jamaica, two each to Antigua and St. Kitts, one to Barbados, three to Boston, six to London, four to Southern Europe ("Streights"), one to Gibraltar, two to Holland, seven to Stockholm. A "galley" is mentioned as having been built much earlier, and McUre says "William Simson, born at St. Andrews about one hundred years ago (written in 1736), . . . built two ships at the Bremmylaw, and brought them down the river the time of great flood." But the *Lume* mentioned above was built at Belfast, and it is only in 1716 that the real parent of the long line of Clyde ships left the stocks at Crawford's Dyke, a sixty-tonner, built for the American trade. She crossed the Atlantic in 1718. It was in this period also that the regular West Indies trade began in earnest. Earlier, an occasional vessel had carried out herrings and a few bales of goods, returning with sugar and rum; but in 1732 was started an agency trade with credit arrangements. Lastly, banking began in the city in this period.

For full details we must refer the reader to Gibson. The list of commodities is extensive. From Southern Europe came salt, 40,000 bushels (round numbers); wine, mainly Spanish and Portuguese, 43,000 gallons; cork, lemons, olive oil, raisins and dainties. The return was mainly tobacco. From Russia, Sweden, and Norway came potash and other ashes, linen yarn, fabrics, and undressed flax, timber, and naval stores, together with some 600 tons of bar iron. Tobacco, linen and woollen fabrics, and sugar were the main exports. Ireland sent salt beef, tongues, pork and bacon, butter, tallow, hides and skins, oats and oatmeal, linen, and received ale, herring, sugar, tobacco, rum, fabrics, soap, glass, coal, salt, iron, and many small items. The imports from North America were timber—mahogany, pine, ash, oak, maple, etc.—turpentine, tar and pitch, train oil, ashes, indigo, skins and pelts. The

main import was the tobacco. Cotton amounted to 100 lbs. There were over 1000 tons of pig and bar iron. Exports to the American Colonies were ale, wines, manufactured tobacco, wrought iron, metal, hard and stone ware, fabrics, clothing, and furniture, soap, candles, glass leather, stationery, fish. From the West Indies came sugars (2400 tons), cotton wool (60,000 lbs.), indigo, logwood, fustic, coffee, ginger, and rum, for which were exchanged the same commodities as those sent to America. Re-exports were large, and entrepot trade important: tobacco 44 million lbs., Irish linen 73,000 yards (70 per cent. of that imported), rum 129,000 gallons (of 180,000 imported), spices, sugar, iron, and mahogany. Home products and the produce of local industry were a considerable proportion of exports: herring 15,000 barrels, soap 30,000 lbs., woollens 575,000 lbs., calico, cambric, and printed linen, thread and twine, candles, paint, leather, paper and books, cabinet ware, furniture and glass. Coal exports amounted to 1031 chalders, say 1200 tons!

Gibson states that there was a large eastward trade to and from London to the account of Glasgow merchants, but that this cannot be estimated. Defoe, in his account of Glasgow as seen on his tour in the north, states that the main disadvantage under which the Scots lay in relation to the English in the American trade was their greater difficulty in marketing imports locally, but that they met it by the establishment of a port at "Alloway" in the Forth for direct export to Holland and London. Gibson is unable to put a value on the foreign trade, but remarks that about a fourth only of the exports are Scots manufactures on account of inattention to industry. Defoe shows, however, that the Glasgow merchants could make up "sortable cargoes" in spite of the hopes of English merchants to the contrary, though not quite the same as those sent from England, and points out that in the production of muslins and gloves the Scots had the advantage both in quality and price. Gibson estimates the Clyde tonnage as over 60,000 in 1772.

*Modern Period, after 1775: The Manufacturing and Shipbuilding Era.*—An immediate consequence of the improvement of the Clyde (cf. p. 44) was the increase of shipping and the beginning of shipbuilding. The progress of Glasgow as a shipping centre and as a centre for the export of ships is illustrated by the tables below.

TABLE I.—Registered Tonnage of the Chief Ports of the United Kingdom, 1919.

| | No. of ships. | Tonnage. | Average tonnage. | Percentage of ships over 3000 tons. | Percentage of tonnage over 3000 tons. | Percentage of U.K. tonnage. |
|---|---|---|---|---|---|---|
| London, . | 3549 | 3,386,318 | 954 | 11·4 | 48·2 | 20·7 |
| Liverpool, . | 1843 | 2,297,723 | 1247 | 17·1 | 68·7 | 14·0 |
| Glasgow, . | 1210 | 1,393,236 | 1151 | 16·4 | 58·4 | 8·5 |

TABLE II.—Average Export of New Ships, with their Machinery, at the Chief Ports, 1909-13.

| | Gross tonnage. | Value with machinery. | Percentage of tonnage of total U.K. Export. |
|---|---|---|---|
| Glasgow, . . | 93,586 | £2,020,798 | 25·9 |
| Tyne Ports, . | 69,183 | 1,571,752 | 19·1 |
| Hartlepool, . | 23,279 | 1,258,227 | 6·4 |
| Belfast, . . | 13,326 | 272,938 | 3·7 |
| Barrow, . . | 6,914 | 930,220 | 1·9 |

The older industries continued to develop, and newer to arise. Thus Glasgow became a leading centre for the export of soap and chemical products. But the staple trade was no longer in tobacco. The existing trade with the West Indies was the first to be developed, and cotton wool was the main raw material imported. Together with the dye-woods it gave Glasgow industry a bias in favour of textile and, particularly, of cotton manufacture. But the merchants had learned the evil of depending on a single staple, and trade was developed on more cosmopolitan lines. As early as 1816 the *Earl of Buckingham*, 600 tons, a sailing ship, was despatched to Calcutta, the first ship to leave the Clyde for India direct. She led the way that was quickly followed by many other vessels. India, the United States (for cotton), Africa and Australia in due course were regularly visited by Clyde shipping. In the middle of the century cotton, iron, coal, and agricultural machinery, with chemical products, were the chief articles of export, and the trade-routes radiated to all the settlements of the commercial world. Cotton and agricultural machinery have largely disappeared from the port's bill of lading, but the variety remains, and defies quotation here. We conclude with tables showing the volume of the overseas trade of the city compared with that of the main ports of the kingdom.

TABLE III.—Average Tonnage entered and cleared from overseas at the Main Ports of the United Kingdom, 1909-13.

| | Thousand Tons. | | | Percentage of Total for U.K. |
|---|---|---|---|---|
| | Entered. | Cleared. | Total. | |
| London, . . . | 11,618 | 8,879 | 20,498 | 14·2 |
| Liverpool, . . | 7,661 | 7,027 | 14,688 | 10·2 |
| Cardiff, . . . | 6,040 | 9,025 | 15,060 | 10·5 |
| Tyne Ports, . . | 5,996 | 6,880 | 12,876 | 9·0 |
| Southampton, . . | 4,872 | 4,609 | 9,481 | 6·6 |
| Hull, . . . | 3,808 | 3,462 | 7,270 | 5·0 |
| Glasgow, . . . | 2,075 | 3,341 | 5,406 | 3·8 |

TABLE IV.—Average Exports, Imports, and Entrepot Trade of the Chief British Ports, 1909-13. (Millions sterling.)

| | London. | Liverpool. | Hull. | Manchester. | Southampton. | Glasgow. |
|---|---|---|---|---|---|---|
| Imports, . . . | 231·4 | 166·7 | 44·3 | 32·4 | 22·7 | 16·0 |
| Exports, U.K. produce, | 84·4 | 149·9 | 25·5 | 19·0 | 18·5 | 31·2 |
| Exports, Foreign and Colonial produce, . | 53·5 | 27·3 | 5·5 | 0·3 | 6·9 | 0·4 |
| Total, . . . . | 369·3 | 345·9 | 75·3 | 51·6 | 48·2 | 47·6 |
| Percentage of U.K. total, | 29·3 | 27·2 | 5·9 | 4·1 | 3·8 | 3·8 |
| Trade per head of Population, . . . | £50 | £461 | £270 | £72 | £405 | £61 |

Trade per head of U.K. £28.

TABLE V.—Nature of Glasgow Trade, 1909-13.

| | Percentage of Glasgow Trade. | Percentage of total U.K. |
|---|---|---|
| Imports, . . . . . | 33·6 | 2·3 |
| Exports, U.K. produce, . . | 65·5 | 6·9 |
| Exports, Foreign and Colonial produce, . . . . | 0·8 | 0·0 |

The tables show that Glasgow is rather an exporting than an importing port, that its entrepot trade has gone, and that it is less exclusively a seaport than any other of the great ports except London, less even than Manchester.

References are to:—MARWICK, Sir J. D., *The River Clyde and the Clyde Burghs*, Glasgow, 1909.
MCURE, JOHN, *The History of Glasgow*, Glasgow (Ed. 1830).
GIBSON, JOHN, *The History of Glasgow*, Glasgow (Ed. 1777).

## THE CARTOGRAPHY OF GLASGOW.

*(With List of Old Maps and Illustrations Reproduced.)*

By JOHN ARTHUR BROWN,
Hon. Sec. of Glasgow Archæological Society.

A HISTORICAL note on the cartography of Glasgow may begin with a reference to Timothy Pont's survey (1596), for there is no existing plan or view of the city earlier than that delineated in Pont's map of

the Nether Ward of Clydesdale and Barony of Glasgow published in Blaeu's Atlas of 1654 (see Map 1). This view of Glasgow cannot be described as an accurate plan, the few streets shown being very roughly laid down, and as the scale of the map is small it has only been possible to indicate a few of the principal buildings, such as the Cathedral, the Tron and Blackfriars' Churches, and the old Bridge over the Clyde with an arched gateway at the south end (see the lower figure in Plate V.). This is the only plan of Glasgow in Blaeu's Atlas, except a smaller one shown in the map of the Barony of Renfrew. There is an entry in the Minutes of the Town Council of 12th June 1641 ordaining the Treasurer to pay James Colquhoun "fyve dollouris" for drawing of the portrait of the town to be sent to Holland; but if this "portrait" was executed for Blaeu's Atlas, it does not appear to have been published.

In his Map of the River Clyde (1734) John Watt, Senior, shows a few streets of Glasgow, but the scale is too small to make the sketch of much practical value (Map 2). James Barry's Plan of the River Clyde from Dumbarton to Rosebank, with a projection of the navigation by John Smeaton (1758), indicates the principal buildings of Glasgow, but no street lines are shown. It is interesting to note the islands in the river shown in this map.

Of sectional plans of the city within the period 1765 to 1777 there are two which are interesting, although they cover only small areas. These are (1) A Plan of part of ye City of Glasgow and course of the Burn Molendinar, produced in Fleming's case against the Magistrates of Glasgow 1765-68 (Fig. 2), and (2) A Plan of Sundry Streets in Glasgow relating to a road in dispute between the College and the inhabitants, surveyed by W. Douglas, December 1777. Both of these plans have been reproduced in Glasgow *Burgh Records*, vol. vii.

The first plan of the whole area of the city laid down on a scale sufficiently large to show the more important buildings was made in 1773 by Charles Ross of Greenlaw, Paisley (Fig. 7). His Map of the Shire of Lanark contains an inset of Glasgow on a scale of about six inches to the mile. It is a good piece of draughtsmanship and useful for identifying buildings existing at the period. It shows a block plan of the buildings of the Archbishop's Castle, with Beaton's tower, offices, and the Great Gatehouse. This plan of Glasgow has been reproduced in a number of editions, and a copy will be found in Glasgow *Burgh Records*, vol. i.

In 1778 John McArthur's fine four-sheet Plan of the City of Glasgow, Gorbells, and Caltoun was published. It is on a scale of 230 feet to the inch, and the title is ornamented with a sketch of the Cathedral Church, the ruins of the Castle, and the Dean's Manse. The map, owing to its accuracy and the amount of detail shown, forms a valuable item of the cartography of Glasgow. It shows the precincts of the Castle (then in ruins) and its garden, with Beaton's tower, St. Nicholas' Hospital buildings and yard, and a number of the prebendaries' manses. A reduced copy of the plan was issued in 1779 (Map 3), and a subsequent edition in 1860 by David Smith, C.E. There is a reproduction of the reduced plan in Glasgow *Burgh Records*, vol. vii.

XX
A View of Glasgow from the West
Academy Glasgow 1751

XXII

James Barry, surveyor in Glasgow, published in 1782 a Plan of the City of Glasgow, Gorbells, Caltoun and Environs, with an exact delineation of its Royalty, on a scale of 500 feet to the inch. A feature of this plan is the numbering of the Royalty march stones. It covers a larger area than McArthur's Map, especially on the north and south of the city, but being on a smaller scale it shows less detail. Barry was a surveyor in extensive practice, and laid out St. Enoch Square in building lots and several new streets north and south of Argyle Street. Previous to the issue of this map, Barry had supplied a plan of the city and of the villages of Caltoun and Gorbells, with a part of the adjacent country (19½ × 15), for Gibson's *History of Glasgow*, published in 1777. The plan of 1782 is reproduced in Glasgow *Charters*, vol. ii. (Map 4).

In 1795 Thomas Richardson's Map of the Town of Glasgow and Country seven miles round was published on a scale of 1½ miles to the inch. Reference to estates, with their proprietors, are given in the margin, and the map is useful for its survey of the environs of the city. It was reproduced in 1883 by W. and A. K. Johnston (20 × 26½), and published in *Glasgow Past and Present*, vol. iii.

In 1797 a Plan of the City of Glasgow from actual survey, on a scale of 1000 feet to the inch, was published in Denholm's *History of Glasgow*, and re-issued in subsequent editions of that book. And in Chapman's *Picture of Glasgow*, published in 1806, will be found a plan of the city on the same scale, with numbered references to the public buildings.

An excellent map of the city and suburbs in six sheets, by Peter Fleming, land surveyor and member of the Philosophical Society of Glasgow, was published in 1807, on a scale of 200 feet. It shows a great amount of detail and the boundaries of parishes, and has an inset plan of Glasgow in 1778. A reduced copy of the map was published in 1808 (Map 5), with a table of references to public offices and buildings, and is reproduced in Glasgow *Burgh Records*, vol. ix. Another edition of the Map of 1807 in six sheets, revised by David Smith, was brought out in 1821. This is a very fine map on a scale of 250 feet.

A Map of the Ten Parishes within the Royalty and the Parishes of Gorbals and Barony of Glasgow, generally known as "Cleland's Map," prepared for his Enumeration of the Inhabitants, was published in 1822 on a scale of 6 inches to the mile, with inset map of the Barony Parish and Royalty of Glasgow laid down to a small scale. This map, containing interesting details regarding the Royalty, the Parishes, and the Barony of Provand, bears to be constructed by David Smith, surveyor, from other maps and plans of acknowledged accuracy, under the direction of Mr. Cleland. Another edition of this map, but without the name of the surveyor, was published in 1831. David Smith's Plan of the City of Glasgow and its Environs, with all the latest improvements, actually surveyed, on a scale 400 feet, was issued in 1828. It is an excellent piece of work, and has references to the parishes. Smith brought out another plan of the city and its environs in conjunction with James Collie in 1839, on the same scale. This is a well-engraved map.

A Plan showing the Parliamentary Boundaries of the City of

FIG. 7.—Ross's Plan

of Glasgow, 1773.

Glasgow will be found in the Municipal Corporation's Report of 1832. This plan is reproduced in Glasgow *Burgh Records*, vol. xi.

A Map of the City of Glasgow, showing the Parliamentary Boundaries, Parishes, Police Wards of the City and Suburbs, etc., with Intended Improvements, by George Martin, Civil Engineer and Surveyor, was engraved and published by W. and A. K. Johnston in 1842, on a scale of 400 feet. This is a most excellent map, and has an inset of Glasgow in 1778.

In 1848 the first of a series of maps of the city and suburbs appeared in the Official Post Office Directory of Glasgow, the earlier maps being engraved by Joseph Swan. These Directory maps were much improved when in 1865 their preparation was committed to John Bartholomew, F.R.G.S., and the maps issued annually thereafter on a scale of six inches to the mile have been carefully revised from Ordnance and actual survey.

Notice must also be taken of a map of the country for ten miles round Glasgow on a scale of one mile to the inch by Edward Meikleham, published in 1852. This is a useful map of the environs of the city, with a good deal of detail.

Although issued subsequently to the first Ordnance Survey of the city and suburbs, and accordingly outwith the period with which this article deals, it would be unpardonable in an account of the cartography of Glasgow to omit a reference to the following maps, which form most useful aids to a study of the history and topography of the city :—

(1) Map of the City of Glasgow, showing the original area in the twelfth century and the areas which have been added from that period (42 × 39). By R. Renwick, Town Clerk Depute, and A. B. McDonald, City Engineer. Engraved by John Bartholomew and Co., and published by the Corporation of Glasgow in 1909.

(2) Sketch Plan of the City of Glasgow, compiled in illustration of Protocols of the Town Clerks of Glasgow 1547 *et seq.* (18 × 16). By A. B. McDonald. Published in *Glasgow Protocols*, vol. i., 1894.

(3) A Map of Glasgow and adjoining district compiled to illustrate "Charters and Documents relating to the City of Glasgow 1175-1649" (26 × 19). By A. B. McDonald. Published in Glasgow *Charters*, vol. i., Pt. i., 1897 (Map 6).

(4) Sketch Plan showing sites of Principal Buildings and Places in the vicinity of Glasgow Cathedral in the sixteenth century, prepared for "Glasgow Protocols, 1530 to 1600" (20 × 16). By A. B. McDonald. Published in *Glasgow Protocols*, vol. xi. 1900.

The accompanying Chronological List of Maps of Glasgow is not intended to include every map published within the period embraced, many of which are on a small scale and of no enduring interest; it is hoped, however, that the list given may form a guide to the more important maps of the city and suburbs. The principal maps are indicated by authors' names in small capitals.

## CHRONOLOGICAL LIST OF MAPS OF GLASGOW

### PRIOR TO THE ORDNANCE SURVEY OF 1857-62.

| | Surveyor. | Date. | Size. | Engraver and Publication. |
|---|---|---|---|---|
| 1 | Timothy Pont | 1596 | ... | In Blaeu's Atlas, 1654. |
| 2 | John Watt, Sen. | 1734 | 12 × 15 | A Map of the River Clyde. Published by John Watt, Junior, 1760. In Marwick's *The River Clyde and the Clyde Burghs*, 1909. |
| 3 | James Barry ) John Smeaton ) | 1758 | 15 × 30 | Engraved by R. W. Seale. A Plan of the River Clyde. |
| 4 | Anonymous | 1765 | 22 × 19 | A Plan of part of the City of Glasgow and Course of the Molendinar Burn. In Glasgow *Burgh Records*, vol. vii. |
| 5 | Charles Ross | 1773 | 12 × 11½ | Inset to Map of the Shire of Lanark. Engraved by George Cameron. Reproduced in Glasgow *B. R.*, i. |
| 6 | W. Douglas | 1777 | 7¼ × 6 | Plan of portion of the City surrounding the College. Engraved by J. Urie. Reproduced in Glasgow *B. R.*, vii. |
| 7 | James Barry | 1775 | 19½ × 15 | Engraved by Andrew Ready, and published in Gibson's *History of Glasgow*, 1777. |
| 8 | JOHN MCARTHUR | 1778 | 38 × 50 | Engraved by Alexander Baillie and James Lumsden. |
| 9 | JAMES BARRY | 1782 | 37½ × 26½ | Engraved by Alexander Baillie. No date on this map, but it is usually ascribed to the year 1782. |
| 10 | Anonymous | 1783 | 7 × 8 | In MacGregor's *History of Glasgow*, etc. |
| 11 | Anonymous | 1790 | 14½ × 22 | |
| 12 | Thos. Richardson | 1795 | 24 × 31½ | Engraved by Kirkwood. A Map of the Town of Glasgow and Country 7 miles round. Published by James Gillies. Reproduced in *Glasgow Past and Present*, vol. iii. |
| 13 | Anonymous | 1797 | 7 × 11¼ | In Denholm's *History of Glasgow.* |
| 14 | Anonymous | 1806 | 7 × 11½ | In Chapman's *Picture of Glasgow.* |
| 15 | PETER FLEMING | 1807 | 6 shs. each 24 × 23 | Engraved by R. Scott. Inset Plan of Glasgow in 1779. |

| | Surveyor. | Date. | Size. | Engraver and Publication. |
|---|---|---|---|---|
| 16 | Peter Fleming | 1808 | $10\frac{1}{4} \times 17$ | Engraved by R. Scott. This is a reduced copy of the Map of 1807. Reproduced in Glasgow *B. R.*, ix. |
| 17 | Peter Fleming } David Smith } | 1821 | 6 shs. each $24 \times 23$ | Engraved by R. Scott. Parishes shown. |
| 18 | David Smith | 1822 | $29 \times 16\frac{1}{2}$ | Engraved by Kirkwood and Son. A Parish Map prepared for Cleland's Enumeration of the Inhabitants. |
| 19 | Anonymous | 1826 | $15\frac{1}{2} \times 12$ | In *Glasgow Delineated*, 1827. |
| 20 | David Smith | 1828 | $24 \times 36\frac{1}{2}$ | Engraved by R. Scott. A Parish Map. |
| 21 | Anonymous | 1831 | $17 \times 29\frac{1}{2}$ | A Parish Map prepared for the Enumeration of the Inhabitants. |
| 22 | Anonymous | 1832 | $20 \times 31$ | In Report on the Burgh of Glasgow (Municipal Corporations), 1832. |
| 23 | David Smith } James Collie } | 1839 | $23\frac{1}{2} \times 37\frac{1}{2}$ | Engraved and published by R. Scott, Edinburgh, and John Symington and Co., Glasgow. |
| 24 | Andr. Macfarlane | 1841 | $32 \times 26$ | A Map of the Burgh of Barony of Anderston. |
| 25 | George Martin | 1842 | $46 \times 72$ | Engraved by W. and A. K. Johnston. With Inset of Glasgow in 1778, Parishes, etc. |
| 26 | Anonymous | 1844 | $13\frac{1}{2} \times 19$ | Litho. by Nicol. Published by Francis Orr and Sons. Reprinted, undated, by W. R. M'Phun. |
| 27 | Anonymous | 1846 | $18 \times 28$ | Parliamentary and Municipal Franchise Map. Published by H. Wilson and James Lumsden and Son. |
| 28 | Anonymous | 1847 | $8 \times 14\frac{1}{2}$ | In Pagan's *Sketch of the History of Glasgow.* |
| 29 | Anonymous | 1848 | $15\frac{1}{2} \times 22$ | Engraved by Joseph Swan. First Post Office Directory Map. |
| 30 | Anonymous | 1848 | $11 \times 19$ | Published by M'Phun. |
| 31 | Edw. Meikleham | 1852 | $23 \times 25$ | Map of the Country for 10 miles round Glasgow. Engraved by Maclure and Macdonald. |

The following maps mentioned in the above article are reproduced here:—

Map 1.—The River Clyde and Adjoining District, compiled from Blaeu's Atlas. (From Marwick's *River Clyde*.) Frontispiece.

Map 2.—Watt's The River of Clyde, and the entry to the River and Firth of Clyde. P. 28.

Map 3.—McArthur's Reduced Plan of the City of Glasgow, Gorbells and Caltoun. P. 40.

Map 4.—Barry's Plan of the City of Glasgow, Gorbells, Caltoun and Environs. P. 64.

Map 5.—Fleming's Reduced Map of the City of Glasgow and Suburbs. P. 72.

Map 6.—Plan of City in 1650 (at end).

Fig. 2.—Plan of part of the Burn Molendinar. Pp. 8-9.

Fig. 7.—Ross's Plan of Glasgow, 1773. Pp. 70-71.

The following illustrations of early Glasgow also appear:—

Plate I., p. 6.—*A View on the Molendinar*, 1769, showing a small and ancient arch believed to have been one of the oldest pieces of masonry in Glasgow. The position of the burn, which is now built over, in relation to the site of the Cathedral, is well shown. From Gemmel's Portfolio of *Early Views of Glasgow*.

Plate II., p. 22.—*A View of Glasgow from the South-East*, 1782, showing the Cathedral, Bishop's Palace, the Drygait (cf. Map 6), some of the drumlins marked on Fig. 1, p. 5, and the site of the early town. Cf. McArthur's Map (3). From Gemmel.

Plate III., p. 38.—*A View of Glasgow from the South-West*, 1764, showing the old windmill and the early condition of the river, also the Gorballs, with the Brig and the wicket gateway, and the Old Green of Glasgow now built over. From Gemmel.

Plate IV., p. 62.—*Glasgow Brigg*, 1680. This is Bishop Rae's bridge, built about 1340, and is that shown in Map 1; The Merchants' House and Steeple (the latter still stands), the Tower of the old Hutcheson's Hospital, Tolbooth Tower (still standing), and the north-west tower and spire of the Cathedral are shown. Slezer's *Theatrum Scotiæ*, 1693.

Plate V., p. 68, Upper Figure.—*View of Glasgow from the West*, 1758, showing Argyle Street as a tree-bordered country lane (cf. Map 3).

Lower Figure.—*Glasgow Harbour*, 1760, showing the old bridge and Glasgow Green (cf. Plate II.). From Gemmel.

Fig. 3, p. 27.—*Glasgow College, with Blackfriars' Church*, in 1669. In 1460 James, Lord Hamilton, bequeathed a tenement in the High Street, with four acres of ground adjoining, for the use of the College. In the building erected here the classes continued to meet till 1864. The site is now covered by a goods station. From Slezer's *Theatrum Scotiæ*, 1693.

Fig. 4, p. 36.—*View of the Trongate from the East*, 1770, showing the old Tolbooth, which was used as Council Chamber, Court, and Prison, the steeple of the first Hutcheson's Hospital, the steeple of the Tron Church, and the old Coffee House. From Gemmel.

## BIBLIOGRAPHICAL NOTE.

By A. Stevens, M.A., B.Sc.

Space permits only the meagrest indications of works of general importance from a list of considerable length. Books are published at Glasgow unless it is stated otherwise.

Bell, Sir J., and Paton, J., *Glasgow: Its Municipal Organisation and Administration*, 1896.

*British Association Handbook*, 1901. 3 vols. on Natural History, Industry, Archæology, etc. Accurate and valuable.

Cleland, John, *Annals of Glasgow*. 2 vols. 1816. Earlier industry and trade, traditions, personalities. Useful statistics. *Description of Glasgow*, 1840; *Statistical Facts, . . . of Glasgow*, 1837.

*Clyde Bill of Entry and Shipping List*, 1887 *et seq.*

Coutts, J., *History of the University of Glasgow*, 1451-1909: 1909.

Eyre-Todd, G. (and others), *The Book of Glasgow Cathedral*, 1898. Illustrations.

Geological Survey: *Memoir on Geology of the Glasgow District*, 1911.

Gibson, J., *History of Glasgow*, 1777. Best of early Histories. Covers earlier Tobacco days. Good on rise of trade: useful statistics, etc.

Gordon, J. (ed.), *Glasghu Facies*. 2 vols. 1872. Maps. Includes McUre's History, and covers all others to date: useful notes, and critical and other comments by several contributors. Other general histories by Denholm (1798), Pagan (1847), MacGregor (1881), G. Eyre-Todd (1911).

Hill, W. A., Reference Catalogue of books, pamphlets, and plans, etc., relating to Glasgow in the Library at Barlanark, 1905. Also publications of Glasgow Bibliographical Society, and Catalogue of the MacLehose Collection.

Incorporations: Histories and Records of the Incorporated Trades of Glasgow—Cordiners, Hammermen, Weavers, etc. Also of Chamber of Commerce and Trades House.

McLean, A., *Local Industries*, 1901.

McUre, John, *A View of the City of Glasgow*, last ed. 1830. The earliest history: groundwork of later works for period prior to 1736. Gossipy, prolix, and often irrelevant; sometimes of doubtful authenticity, but indispensable for study.

Marwick, Sir J. D., *The River Clyde and the Clyde Burghs*, 1909. General outline of history of Clyde in relation to Glasgow and Paisley, Dumbarton, Renfrew, etc., from earliest times. Copious reference to literature, charters, etc. Maps and Illustrations. *Charters relating to Glasgow*, 1175-1649. 2 vols. 1894-7. *Early Glasgow to* 1611: 1911 (maps, illustrations); *The River Clyde and Harbour of Glasgow*, 1898, and other works.

Nicol, J., *Vital, Social, and Economic Statistics of Glasgow*, 1881-85: 1885; 1885-91: 1891.

Reid, R. ("Senex"), and others, ed. J. Pagan. *Glasgow: Past and Present*. 3 vols. 1849-51. Collection of newspaper, etc., articles by Glasgow citizens. Gossipy, quaint, discursive: very readable. A miscellany on all sorts of subjects relating to Old Glasgow and Glasgow personalities; includes other publications of same author. Illustrations, maps.

Strang, J., *Economic and Social Statistics of Glasgow*, 1862.

Renwick, R., *Extracts from the Records of Glasgow*, 1809-33. Illustrations.

Societies: Transactions of Royal Philosophical Society of Glasgow. Archæological, Geological, Natural History, Andersonian Naturalists', etc., Societies. Also publications of Faculties of Physicians and Surgeons, and of Procurators of Glasgow.

Rooseboom, H. P., *The Scottish Staple in the Netherlands*; The Hague, 1910. Short Bibliography.

There are numerous Corporation Publications on Municipal Enterprises, and Government Publications on Boundaries (with maps). The works of Hume Brown, Cosmo Innes, Amelia Stirling (*Sketch of Scottish Industrial . . . History*; London, 1906), and Davidson and Gray (*The Scottish Staple at Veere*; London, 1909), are valuable.

## L'ENVOI.

By Sir HALFORD J. MACKINDER, M.P.

I HAVE been asked to write a note on the future of Glasgow. It seems to me that on this subject there is only one thing which can be said with certainty, and it is that the geographical circumstances which in the past have conduced to the growth of the city would not in this twentieth century suffice to create anew in this locality a great centre of activity, if for any reason, whether of military defeat or economic strife, Glasgow were now to cease to flourish. The city may to-day be likened to a man in the full tide of middle life who easily counters his youthful competitors because of his long start, but should he fail for any reason will discover that he has not their power of recuperation.

It is necessary to invoke momentum from the past in order to explain the greatness of many of the oldest centres of urban life. Geographical analysis alone will not be enough without the inclusion of "compound interest" on the original geographical capital. You may analyse the position of Glasgow and show that it was founded on the nearest solid ground to a ford across the Clyde, and that the paths up and down the valley here crossed the paths from the hunting grounds of Strathmore and Kyle; but you have so only given the reasons for the placing of a big village. St. Ninian and St. Mungo established a home of missionaries at this focus of pathways into the wild, and so you explain a little episcopal city. Under the protection of her bishops, Glasgow's market outstrips Renfrew, Dumbarton, and Rutherglen, so that the traffic comes by the converging paths from farther afield; you have still only added a High Street of shopkeepers to a cathedral close. The Union of 1707 gives Glasgow the opportunity of importing the sugar and tobacco of Scotland; you have now accounted for Jamaica Street. Finally the exploitation of the Lanarkshire coal and iron gives you an industrial area with a few hundred thousand workers. But Kelvinside and Clydebank, the city of a million within and half a million more without the municipal boundary, is only to be explained by the fact that being a great going concern Glasgow has changed her geographical environment, has brought the seas to her doors and made tributary distant ores and granaries. It is in short an independent geographical fact that you have beside the Clyde not only deposits of coal but in these days also a deposit of human energy and skill and habit of working together. The result is that in a far corner of the damp and chilly north, in a little sterile land, beside an unnavigable mountain torrent, we see a great world-centre. No one would have deepened the Clyde unless Glasgow had already been there. To him that hath shall be given.

To say that Glasgow flourishes because the Scottish race has Scottish qualities is only half an explanation; Scots show no disinclination to found Dunedins in distant and more open lands. It is conceivable that for sentimental reasons the Scottish race scattered over the world might

have maintained a spiritual home in Edinburgh, a place of education for their young and of leisure for their old; the Jewish race has such an idea in regard to Jerusalem under the mandate of Britain. But Scots are attracted to Glasgow and stay there in order to make money.

In each successive phase of civilisation Glasgow has flourished up to the possibilities of the time, and was therefore ready to seize the opening chances of the succeeding age and so to gather more than her due share of prosperity as measured by geographical probabilities. It is because Glasgow is a great running concern, highly organised, impossible of bodily removal, that the world's orders for new ships come in such large measure to the Clyde. Mohammed had to go to the mountain, but a town of Scottish Mohammeds has compelled the mountains to come to it in the shape of foreign iron ores.

Geographical momentum is, of course, merely a particular aspect of a universal truth. Newton's first law of motion states that truth in its simplest mechanical form; the tendency of modern physics is to resolve all matter into continuing movement. In the realm of mentality the same law holds; man is a creature of habit and his ruling passion is strong even in death. Society by interlocking human habits multiplies in a steep geometrical ratio the results of psychological momentum or inertia, call it which you will. In commerce we speak of customers and we buy and sell goodwill. Among geographers it is a commonplace that no human settlement is more difficult to supplant than an established market; every buyer and seller trusts to find the most advantageous bids and offers at the customary place of concourse.

There are cities such as Chicago and Winnipeg which are conditioned by great geographical features commensurate with twentieth-century methods of human organisation. Lake Michigan stretches as a broad gulf for three hundred miles southward and bars the eastern transport of grain from a vast corn-growing region; therefore the railways converge to a focus as they round the end of the water on their way to the consuming populations. Were Chicago to be utterly destroyed it is certain that a new Chicago would at once rise upon the ruins. In a new country the importance of cities still depends as a rule directly upon geographical advantages. In the historic Mediterranean, on the other hand, we have examples both of long-continued geographical compulsion and of evanescent momentum. Carthage was established where some hillocks and a defensible peninsula caught the eye of the Phœnician colonist, and a small harbour and a fertile valley were at hand. As Carthaginian society acquired momentum it almost achieved the domination of the Mediterranean. But that momentum was arrested, and who to-day would dream of basing one of the world's capitals upon the vacant little natural features which once bore Carthage? Set in contrast Marseilles and Constantinople. They occupy sites of perennial significance: Marseilles in the passage between Alps and Pyrenees from fertile France to the Mediterranean shore, and Constantinople at the crossing of the seaway from fertile Russia with the landway into populous Asia; they have never lost their importance, have always renewed their momentum.

In my view Glasgow, Manchester, and London owe their greatness to-day mainly to momentum from the past. In course of time a hundred pounds will grow to a million by compound interest, and it is always fascinating to investigate the beginnings of a fortune ; in like manner the little streams, hills, woods and marshes, which before the houses were built shaped the site of the city, hold our imagination, but have little actually to do with the persistence of Clyde shipbuilding or of Lancashire cotton-spinning or of the London money market and entrepot trade.

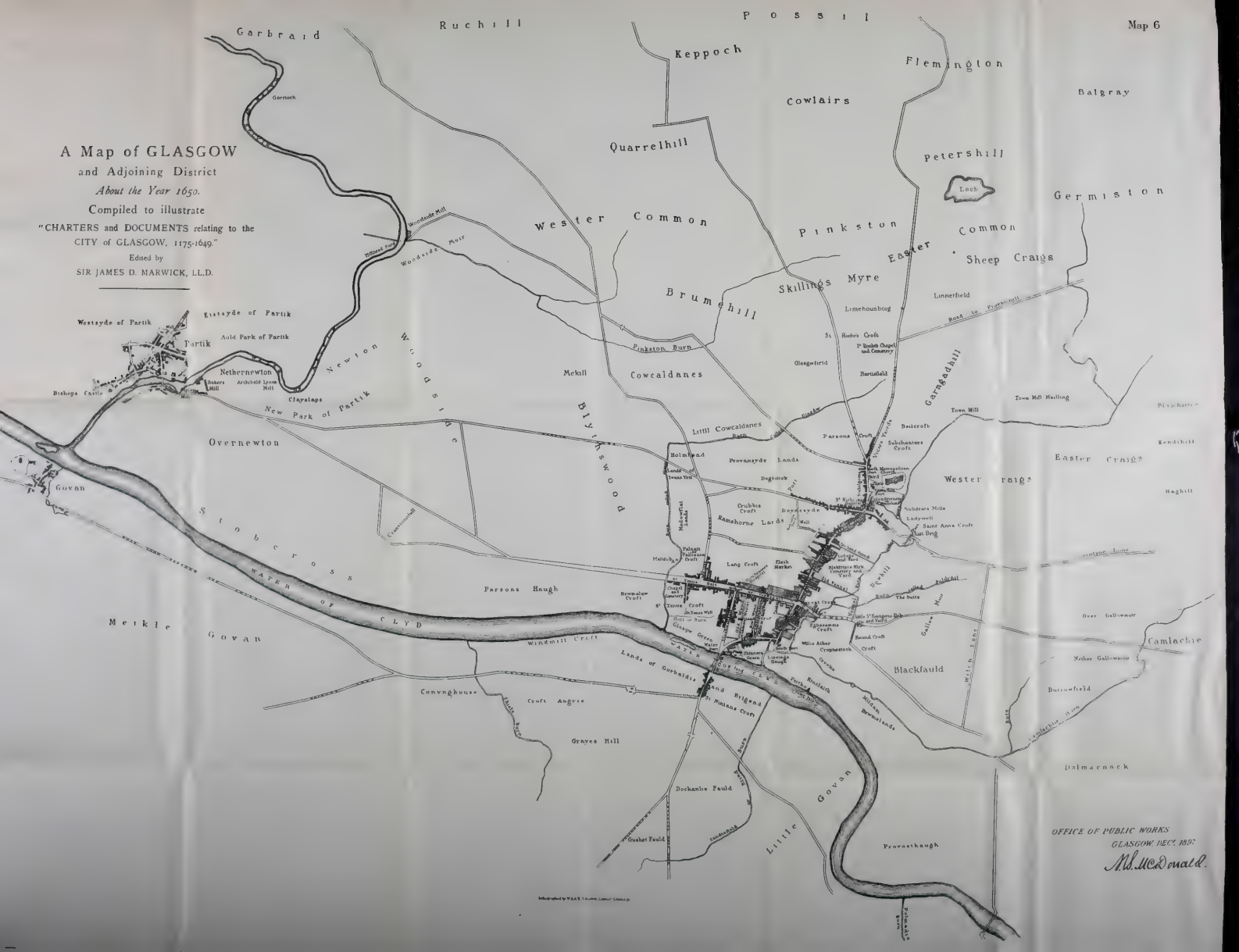
How important is the element of momentum in the present geography of the world is seen when we realise that Europe occupies less than two per cent. of the Globe's surface, and Great Britain only a little more than two per cent. of Europe, and yet Great Britain consumes one-third of all the wheat borne across the ocean. This mighty British momentum will not easily be arrested : it has the strength of the whirlpool and has survived the World War. But had we been defeated, the pitiful fate of Vienna would have fallen on Glasgow, Manchester, and London, and they could never have recovered, for the momentum on which they now exist would have been destroyed.

The citizens of Glasgow, be they employers or employed, are in truth all capitalists. They depend for very existence on a running organisation and world-wide goodwill which have come down to them from their predecessors. That is not to say that they should timidly abstain from healthy contention among themselves, for the going concern must be improved as it runs if it is not to be left behind by upstart competitors. But it does signify that their economic strife should always be tempered by the consciousness that they are the guardians of a society for their children which they can destroy but never recreate.

# CONTENTS


| | PAGE |
|---|---|
| EDITORIAL, . . . . . | 1 |
| GLASGOW AND ITS GEOGRAPHICAL HISTORY. By Professor J. W. GREGORY, D.Sc., F.R.S. (*With Sketch-Map*), . | 2 |
| THE PEOPLE OF GLASGOW. By Professor T. H. BRYCE, M.A., M.D., | 13 |
| THE CATHEDRAL AND BISHOPRIC. By Dr. GEORGE NEILSON, . | 21 |
| MUNICIPAL HISTORY AND ACTIVITIES. By Sir JOHN LINDSAY, J.P., D.L., Town Clerk of Glasgow. (*With Illustrations*), | 26 |
| THE RISE OF TRADE AND INDUSTRY. By WILLIAM POWER, . | 37 |
| THE PORT AND ITS DEVELOPMENT. By D. M. MACINTYRE, M.B.E., F.C.I.S., Assistant Secretary to the Trustees of the Clyde Navigation. (*With Map and Illustrations*), . | 42 |
| GEOGRAPHY AT THE UNIVERSITY OF GLASGOW. By Principal Sir DONALD MACALISTER, K.C.B., M.A., M.D., D.C.L., LL.D., D.Sc., . . . . . | 53 |
| OVERSEAS RELATIONS. By A. STEVENS, M.A., B.Sc., Lecturer in Geography in the University of Glasgow, . . | 56 |
| THE CARTOGRAPHY OF GLASGOW. By JOHN ARTHUR BROWN, Hon. Sec. of Glasgow Archæological Society. (*With List of Old Maps and Illustrations Reproduced*), . . . | 67 |
| BIBLIOGRAPHICAL NOTE. By A. STEVENS, M.A., B.Sc., . | 76 |
| L'ENVOI. By Sir HALFORD J. MACKINDER, M.P., . . | 77 |


MAPS and PLATES (*see p.* 75).


A Map of GLASGOW
and Adjoining District
About the Year 1650.
Compiled to illustrate
"CHARTERS and DOCUMENTS relating to the CITY of GLASGOW, 1175-1649."
Edited by
SIR JAMES D. MARWICK, LL.D.
Garbraid
Ruchill
Possil
Keppoch
Flemington
Balgray
Cowlairs
Quarrelhill
Petershill
Loch
Germiston
Wester Common
Pinkston
Easter Common
Sheep Craigs
Skillings Myre
Brumehill
Limehousbog
Linnetfield
Road to Provanmill
Pinkston Burn
Glasgowfield
Garngadhill
Mckill
Cowcaldanes
Littil Cowcaldans
Town Mill
Town Mill Mailing
Bleachfield
Kendrickhill
Easter Craigs
Wester Craigs
Haghill
Overnewton
Govan
Stobcross
Water of Clyd
Parsons Haugh
Meikle Govan
Windmill Croft
Lands of Gushetlands
Convnghouse
Croft Angrie
Graves Hill
Dockanlee Fauld
Gushet Fauld
Little Govan
Provosthaugh
Blackfauld
Camlachie
Dalmarnock
Burrowfield
Partik
Westyde of Partik
Eastyde of Partik
Auld Park of Partik
New Park of Partik
Nethernewton
Bishops Castle
Claysteps
Newton Wood
Woodside Mill
Woodside Muir
Overnewton
Holmhead
Provanyde Lands
Ramshorne Lands
Crubbis Croft
Dowcraig
Subdeans Mills
Ladywell
Saint Anne's Croft
Lang Croft
Flesh Market
Parsons Croft
Burlcroft
Subchanters Croft
Town Mill
Bishop's Mill
Archibald Lyon's Mill
Clerkenholl
Blythswood
Maitland's Croft
Brownlaw Croft
Glasgow Green
Willie Aiker's Croftstock
Round Croft
Croftfoot
Rhodefauld
Gallow Muir
Welsh Lane
Nether Gallowmuir
Over Gallowmuir
Burnfield
Dalmarnock
Provanmill
Linnetfield
Limehousbog
Glasgowfield
Barrowfield
Bridgend
Croft Angrie
Graves Hill
Dockanlee Fauld
Gushet Fauld
Little Govan
Provosthaugh
Meikle Govan
Parsons Haugh
Windmill Croft
Lands of Gushetlands
Convnghouse
Blackfauld
Camlachie
Dalmarnock
Burrowfield
Haghill
Kendrickhill
Bleachfield
Easter Craigs
Wester Craigs
Garngadhill
Petershill
Germiston
Balgray
Flemington
Cowlairs
Quarrelhill
Keppoch
Possil
Ruchill
Garbraid
Garnock
Pinkston Common
Sheep Craigs
Skillings Myre
Brumehill
Wester Common
Mckill
Cowcaldanes
Blythswood
Overnewton
Govan
Stobcross
Water of Clyd
Parsons Haugh
Meikle Govan
Partik
Nethernewton
Newton Wood
New Park of Partik
Auld Park of Partik
Eastyde of Partik
Westyde of Partik
Bishops Castle
Claysteps
Woodside Muir
Woodside Mill
Holmhead
Provanyde Lands
Ramshorne Lands
Crubbis Croft
Dowcraig
Subdeans Mills
Ladywell
Saint Anne's Croft
Lang Croft
Flesh Market
Parsons Croft
Burlcroft
Subchanters Croft
Town Mill
Town Mill Mailing
Bleachfield
Kendrickhill
Easter Craigs
Wester Craigs
Haghill

THE SCOTTISH

GEOGRAPHICAL

MAGAZINE.

# IN RUSSIAN TURKESTAN UNDER THE BOLSHEVIKS.

By Major F. M. Bailey, C.I.E.

*(With Illustrations.)*

[The following lecture was delivered to the Society in Edinburgh on February 3, when Major Bailey was presented by Lord Salvesen, President of the Society, with the Livingstone Medal. Major Bailey was sent in August 1918 by the Government of India on a mission to the Soviet Government of Turkestan. The journey to Tashkent was made by Kashmir and Chinese Turkestan, through Kashgar and across the Terek Dawan Pass, and Figs. 1, 2, 3, and 4 show scenes on the route. An account of the mission and of its journey was given to the Central Asian Society by Sir George Macartney in 1919, and appears in the *Journal* of that Society (Vol. VIII. Part i.). Major Bailey also lectured to the Central Asian Society, and we are indebted to its Council for kind permission to reprint his paper from their *Journal*.]

After the departure of Sir George Macartney and Major Blacker from Tashkent in September 1918, the position of Mr. Tredwell, the Consul for the United States, and myself became increasingly difficult. The Bolsheviks were exasperated at our action in sending troops against them both on the Murman coast and in Transcaspia. Permission to leave the country had been refused to me, and Kolisoff, the Chief Kommissar, told me that "the Government" had grave suspicions of me.

Mr. Tredwell and I, together with some other foreign subjects, had once been arrested by the Extraordinary Enquiry Commission, a gang of rascals who had power to do what they liked in cases of danger to the republic. Mr. Tredwell had been once released, and Kolisoff and Damagatsky, the Foreign Kommissar, had personally

apologised to him. Some days before this the Central Government at Moscow had telegraphed ordering the arrest of all Allied officials, and their "destruction" if they could not be kept safely. To the credit of the Turkestan Government, they refused to carry out this order at once, but telegraphed to Moscow for further instructions, in the meantime keeping six clumsy spies each on Mr. Tredwell and myself. Finally, on October 20, 1918, we heard that the reply from Moscow had been received, directing our arrest, and I disappeared as arranged, and a few days later Mr. Tredwell was arrested and kept under a guard in his own house until he was sent to Moscow and on to America in March 1919. There had been 110,000 Austrian prisoners in Russian Turkestan, but, owing to the dreadful state of the camps, many of these had died of typhus, neglect, and starvation. On the outbreak of the revolu-

FIG. 1.—Kashgar from the City Wall.

tion the survivors were set free, and there were about 30,000 in Turkestan at the time of our arrival. The prisoners were mostly Magyars. It was also reported that a German staff had reached Astrakhan, and were to come across the Caspian to Turkestan for the purpose of organising them; but our troops in Transcaspia prevented communication except by a difficult desert route, and the collapse of the Central Powers in Europe occurred at this time and no more was heard of the party.

The Bolsheviks organised propaganda to persuade the prisoners to join the army, and at least 50 per cent. of the Turkestan Red army were prisoners of war. The Magyars joined in great numbers, but other nationalities for the most part refused. The Germans, of whom there were only about 1200, retained a certain amount of discipline under Lieutenant Zimmermann, who dissuaded them from joining, but endeavoured to form a detachment under German officers, which the Bolsheviks would not allow, as it would have only been nominally a part of the Red army.

It was a comparatively simple matter to pretend to be an Austrian prisoner. The language difficulty was not serious, as the prisoners in Turkestan consisted of Germans, Poles, Magyars, Czechs, Slovaks, Slovenes, Serbs, Roumanians, Italians, Alsatians, and people from Galicia who spoke Little Russian. If one met a prisoner one could always pretend to belong to one of the other nationalities; but it was best to avoid meeting other prisoners at all.

The situation of the Turkestan Government at this time was very serious. On the west, in Transcaspia, Askhabad, Merv, and the country almost up to the Oxus was held by their enemies. On the north Dutoff was holding the Orenburg-Tashkent railway line with his Cossacks. In Semiryechensk there was a large rising of Russian peasants,

Fig. 2.—The City Wall of Kashgar.

while in Ferghana a Mohammedan named Irgash was out with a large following of natives and a few Russians. The Soviet army also lacked discipline at this time. The troops at the front would hold a meeting and decide whether they would attack the enemy. After much speechifying it might be decided to advance, when some one would point out this was impossible owing to lack of water or supplies. They would then wait while supplies were brought up, when a fresh meeting would be held, which as likely as not would decide not to attack, and the army would sit doing nothing for several days. When it became evident that war could not be carried on on these lines very strict discipline was introduced, and the poor Soviet soldier found himself much worse off than when in the Russian Imperial army.

Had the anti-Soviet parties acted in concert, there is no doubt that, so far as Turkestan was concerned, Bolshevism would have come to an

end, and the people of all nationalities would have been freed from a most tyrannical oppression. Further, an anti-Bolshevik army would have been formed, which would have advanced along the Orenburg railway; Kolchak would then have found allies on his left flank instead of enemies, and would have been able to draw supplies from Turkestan, and the whole future of Russia might have been altered.

The Bolsheviks in Turkestan formed a very small minority of the whole population. Except for a few adventurers, none of the Mohammedans, who form about ninety-five per cent. of the population, were Bolshevik, though some of the lower classes were driven by hunger to join the Red army. Bolshevism is directly opposed to the Moslem

Fig. 3.—Caravan in the Alai Mountains between Kashgar and Osh.

religion, and it should be noted that the anti-clericalism of the Bolsheviks was as much directed against the Mohammedan clergy as against the Christian, though anti-Christian action was more open. A friend of mine who was in the service of the Bolsheviks wished to get married, but this could not be done in church without getting him into trouble with his employers, and the lady would not be satisfied with the civil marriage which had been instituted by the Government. One great advantage of the Bolshevik marriage was that it entitled the pair to a permit to purchase four bottles of wine to celebrate the event, and people who had been properly married for years would go through a Bolshevik marriage, which only cost seven roubles, for the sake of the liquor. Marriage was accomplished by signing a document in the presence of a notary, and divorce by cancelling the agreement in the same way.

On my disappearance the Bolsheviks at first thought I had been murdered by German agents, or that I had met with an accident. Actually I had left the town and attempted to reach Kashgar *via* Ferghana, but found this impossible, and I was obliged to remain hidden for some time outside the town.

Our only source of information about the outside world and the war was the Bolshevik Press. This contained telegrams collected by the Moscow wireless and passed on by wireless to Tashkent. According to these messages every country was on the verge of revolution, and strikes and conflicts between the "workers" and the police were reported from all over Europe.

In the summer of 1919 great hopes were centred on strikes which

FIG. 4. -Kirghiz Yurts in defile on the west side of the Terek Dawan Pass, Alai Mountains.

were to take place in Great Britain and France to force the Governments to make peace with and recognise the Russian Soviet Governments. When the strikes failed to materialise and the leaders said things disapproving of the Russian Soviet system, the papers were filled with diatribes against the Western proletariat who had "betrayed" them. There was usually a paragraph in a corner of the newspaper headed "Imperialists' War," from which we gathered that things were going all right for us on the Western front. Then one day news appeared of the Armistice, and the German and Austrian prisoners at once formed *Soviets*, who took charge of the prisoners' organisations, including the Red Cross and its funds. Later the prisoners formed a Communist party, which the German officers did their best to prevent German prisoners from joining.

In January I was returning to Tashkent when an anti-Bolshevik

rebellion broke out in the town. A word of explanation may be given of this clumsy expression "anti-Bolshevik." The Bolsheviks called all their enemies "counter-revolutionaries," and one got into the habit of using this word in conversation. I came across very few Monarchists, and most people of education were in favour of some form of constitutional government and opposed to the former autocratic Tsarist régime almost as much as to the existing Dictatorship of the Proletariat. Many of these had been labelled as revolutionaries under the Monarchy, and were mortally offended at being called "counter-revolutionaries."

The leader of the outbreak in January 1919 was a young man called Ossipoff, who had been War Kommissar, and had in October been a violent Bolshevik, and had personally prevented a courier of mine from going to Kashgar, although the Foreign Kommissar had promised me the permission. He was, like so many Bolshevik Kommissars, an adventurer and opportunist. This man treacherously telephoned to the Government headquarters saying that trouble had broken out, and asking the Kommissars to come immediately to confer. Eight of them came, and were at once shot by Ossipoff and his men. The key to Tashkent is the fort, which is situated between the old Mohammedan and new Russian towns. This was held by Magyars, and the White Guards never took it, though for one day they had command of the Russian town. The railway workmen were well organised and formed a compact political body who were opposed to the Bolsheviks. They had taken a leading part in this rebellion, but eventually turned to the side of the Bolsheviks, and of their two leaders one was later tried and shot and the other went mad. There are several stories to account for the failure of their attempt to finish Bolshevism in Turkestan. One is that Kolasaieff, the commander of a regiment who had turned against the Bolsheviks, entered Ossipoff's headquarters and greeted him as "Comrade." Ossipoff, who was drunk, said that they were no longer "Comrades," and he would trouble him to be more respectful when talking to his leader. On this Kolasaieff went out and turned all his men against Ossipoff. The latter then collected what men he could and retired to the mountains to the north, but many parties of his men who were patrolling the streets were never warned of his retirement and were caught and shot.

The Bolsheviks exacted dreadful vengeance for this attempt, which they attributed to the bourgeoisie. Every house was searched, and all officers and *most* men of the upper and middle classes were taken out and shot in circumstances of great brutality. The men were stripped naked, as their clothes were wanted by the Bolsheviks, and they were kept waiting in intense cold until their turn came to be shot. Exclusive of the few killed in street fights, about 4000 men were executed at this time in a few days. Their trial consisted in some Red soldiers saying that they had carried arms in the street, when a "Judge," without listening to any defence, ordered the execution. Some of those executed were quite innocent. Had the whole of the intelligent classes taken part in the affair the rebellion would probably have been successful: as it was, the whole of this class suffered. Among the victims was M.

Kleberg, head of the Swedish Red Cross Mission, who had nothing whatever to do with the rebellion; but no word of defence was permitted, and probably he was not even allowed to say who he was. A great number of schoolboys of fifteen and upwards were shot, and I knew one boy of fourteen who was arrested, but spared on account of his youth. It is difficult here to realise this awful tragedy of Tashkent, a town of about 90,000 Russian inhabitants. Whole streets of the better class districts had every man executed. One man, Tolkachoff, boasted that at this time he shot 758 men with his own hand, and later he shot others, and was even allowed a ration of wine, as he said it helped him in his work! Several women who had fed the White Guards on this occasion were also shot.

It is fair to say that, apart from these executions, which were carried out in the most inhuman manner, I heard of no cases of wanton torture inflicted by the Bolsheviks, such as have been related from other parts of Russia.

At this time a small British force was in occupation of Merv and the country to the east, and the population of Turkestan was daily expecting and hoping for news of an advance to deliver them from the unsupportable Bolshevik tyranny. After the suppression of the January rebellion there were no elements left capable of being organised against the Bolsheviks, and the only hope of the people was in the advance of our troops. I myself was so confident of their advance that I did not think it worth while to take the great risk of leaving the town. For some time after the January events the roads were very carefully watched for escaping anti-Bolsheviks, and the danger of being caught was far greater than in December.

I was not myself in Tashkent during this rebellion. I was actually driving into the town the day it broke out, and was turned back by the news when I had only ten versts more to go, and was obliged to hide in a village until the town quieted down and I was able to enter. Here I lived with peasants in the guise of an Austrian soldier, and had a good opportunity of seeing the results of giving political power too suddenly into the hands of people who neither understood it nor wanted it. The village I was in was divided politically into two halves; one end believed themselves to be Bolshevik, and the other Left Social Revolutionary, though no single man knew anything about the differences between these parties. Rumours of the coming rebellion in Tashkent reached the village, and the L.S.R.'s decided to murder the Bolsheviks, who were in a minority; so off they started, full of drink. The Bolshevik portion of the village fled, and hid some miles off, and the L.S.R.'s returned home. They then received news that there were no longer such things as L.S.R.'s and Bolsheviks, but that they were united in one party called Communists, and were opposed by the White Guard, who were striving to replace the "old régime." On this the two parties kissed in the streets and went off against Ossipoff.

The Russian peasants were only Bolshevik when Bolshevism consisted in getting rid of a landlord. As soon as this was done they became landowners themselves, and were consequently classed as

bourgeoisie, especially if they employed any labour on their land.

Up to March 1919 the Soviet Government of Turkestan was cut off from direct communication with Moscow except by wireless, as Dutoff's Cossacks were lying across the Orenburg-Tashkent railway, and an anti-Bolshevik force held the Transcaspian line at Merv and Askhabad. In March, however, Dutoff retired, and through railway communication was established for a short time. The Bolshevik leaders in Turkestan included no men of education. The Chief Kommissar had been an oiler on the railway, and most of the other Kommissars were men of this sort. The result was that the chaos was worse even than at Moscow and in other parts of Russia, where the leaders were fanatical but educated idealists. The Moscow leaders were alarmed at the news from Turkestan, where the Russian population was only 5 per cent., and of this small minority a very small proportion were genuine Bolsheviks. They therefore took the opportunity of the opening of the railway to send some more intelligent men to Tashkent. With them appeared some Indian revolutionaries who had been in Berlin during the war. Prominent among them was one Barkatullah, who had been Foreign Secretary of the Provisional Government of India, Mohendra Pratab, whom later I met in New Bokhara, being president. This "Provisional Government" had been formed in Berlin with the object of administering India after we had been driven out. Barkatullah, when in Turkestan, masqueraded as a German subject, and called himself German Envoy to Afghanistan. With him was associated a notorious agitator, Mohammad Kazim Beg, a Turk, who styled himself Turkish Envoy to Afghanistan. These men conducted a violent Anglophobe propaganda, chiefly directed against the Administration of India. The papers were filled with lurid accounts of the events in the Punjab in the spring of 1919. Their accounts of India would surprise any one who had had personal acquaintance with our system of administration: "Thousands are hanged for expressing love of their country." "In the gaols they perish of disease." "Trials are conducted in English, a language which the people do not understand." "Parts of India remain uncultivated, as the yield is insufficient to cover the exorbitant taxation, and the famine-stricken people are enticed into the army and forced to destroy their brothers, with the result that many battalions have mutinied." "Factories are not allowed to be established." "Education is not allowed." "Men are forced to work for twelve hours a day in the hot weather on a wage of 3d. to 6d. a day, and often, under a system of forced labour, for nothing at all." "They are sent to British Colonies against their will." "An army, known by the natives as the Army of Murderers, had been raised from the frontier tribes, mostly Afghans, to subdue the people"—this last a curious confession while the Bolsheviks were considering an alliance with Afghanistan, and had an Afghan Mission in the town. "India was forced to pay vast sums for the war," etc. A good deal of abuse was also directed against the United States.

It was also stated that we had not taken our fair share of fighting in the war, but had egged on the French, Belgians, and others, and

especially had employed Indians. The total British casualties were said to have been only 50,000, while the Indian casualties were much higher.

The arrival of the politicians from Moscow had the effect of steadying the Administration to some extent. Executions without trial became less frequent, and when Tolkatchoff amused himself by shooting three men whom he found in gaol the new Government was somewhat annoyed. At the same time, the pursuit of their enemies among the population was more vigorous, and carried on with more intelligence.

Notices were posted in the streets asking people to report the evil doings of the bourgeoisie, speculators, sabotagists, and hooligans. "One word, a small fact, will often give a clue to the discovery of a conspiracy. If desired, these communications will be kept secret." This sort of thing did not make life pleasant.

The Turkestan republic had always shown itself disinclined to obey implicitly the orders received from Moscow, and these new men tried to bring the Government into line with the desires of the Central Government in Moscow, which led to a good deal of friction. One point which Moscow insisted on was that the native population should receive the same treatment, and be given a voice in proportion to their numbers—*i.e.* 95 per cent. This would have meant the end of Bolshevism at once, as the native Mohammedans, except for a few adventurers, were directly opposed to Lenin's Dictatorship of the Proletariat.

In the spring of 1919, at the commencement of the Afghan War, a Mission appeared from Afghanistan under command of General Mohammad Wali Khan. He stated that he had come to get the sanction of the Peace Conference to the declaration of independence by Afghanistan. He was accompanied by some Indian revolutionaries, with one of whom I had a talk through an interpreter. He thought I was an Austrian officer.

The Mission was unable to reach the Peace Conference, as the Orenburg railway was again cut by Kolchak's men, and the Transcaspian line still held by anti-Bolsheviks. When the railway to Orenburg was eventually opened, they went to Moscow. The Afghans asked the Bolsheviks for assistance in their war against us, but none could be given. This led to a local sensation when the opposition asked publicly why assistance had not been given, and the Government replied that they were not sure against whom the arms asked for would be used. This was considered a reflection on the honesty of the Afghans, and the opposition made much political capital out of it, and an Afghan wrote to the papers to say that the British had offered them money and arms if they would fight the Bolsheviks, but the Afghans had rejected the offer, and held out the hand of friendship to the workmen and peasants of Soviet Russia.

The news of the Afghan war as reported in the Tashkent Press showed nothing but Afghan victories, including the capture of Peshawar. Some surprise was therefore caused by a wireless message

from Europe saying that peace had been concluded and British troops had evacuated Afghanistan. The Government asked the Afghan Consul, who had been installed on the departure of the Mission for Moscow, to explain the evacuation of Afghanistan by the British, when the only news received had been the capture of Indian territory by Afghans. The Consul published a shameless statement in which he said that the peace was merely to enable the Afghans to harvest their crops, regroup their armies, and consolidate their hold on British territory captured.

An interesting interview with the head of the Mission was published in the Press. The Afghan General stated that the Rowlatt Bill forbade Mohammedans to pray in their mosques and Hindus in their temples. The people of India appealed to Afghanistan through their newspapers for help against this inhuman law. The Afghans, owing to disturbances near their frontier, then moved some soldiers to strengthen their frontier posts. These were attacked without warning by our troops.

The Bolsheviks openly aim at world revolution ; the way to accomplish this is to encourage revolutionary elements in other countries. They openly stated that their policy with regard to Bokhara and Khiva was to support the revolutionary movements of the "Young Khiva" and "Young Bokhara" parties and to organise there "revolutionary colonies." They were not to strive for a revolution by force, but to await the moment when the revolution came naturally as a result of this encouragement. The Afghan Government, while welcoming Soviet Ambassadors, made them promise not to indulge in any propaganda.

The economic situation of the republic was desperate. They had no machinery for collecting taxes, and they financed themselves by printing paper money and by levying contributions from people who were known to be wealthy. A representative of the Special Department would call and quietly inform you that your contribution was 50,000 roubles, or some such amount. If the unhappy bourgeois refused to pay he was taken to gaol. Here on one occasion three of them were shot, after which threats were usually sufficient to produce the money. One trick they played was to take the men out of the gaol one by one and say they would shoot them if they did not pay. The man would be walked round the corner and a shot fired, and the Red Guards come round for their next victim, who, thinking his predecessor had been shot, usually promised to find the money somehow ; but so far as I know only three men were killed for this reason. Many people actually had not the money. Their money may have been tied up in shares, and of course all such money had long ago been nationalised. People were obliged to sell jewellery and even furniture to meet these demands for contributions.

At first insurances up to a very small amount were allowed to stand, though, of course, the funds of the companies were taken over. Later all insurances were repudiated. All houses and property even of a very small rental were nationalised. Great numbers of houses

were required for public offices, which increased enormously with the Soviet régime. Members of the Quartering Commission would appear and inform the resident that his house was required, and he would be told to leave next morning, or at best he would be given a few days to make other arrangements. Later the furniture was also nationalised with the house. In the uncertainty people had been selling their furniture to natives (who had opportunities of hiding it in the old city) for a fraction of its value in order to save something, but eventually this was forbidden by law. On being turned out of one's house, one was obliged to search for quarters, and then to go to the Quartering Commission and wait hours in a queue for a written permission to live there. Then one might find oneself living with rude Bolshevik soldiers or other unpleasant companions. The best thing to do was for several upper-class families voluntarily to vacate their houses and take rooms together. Thus you lived with decent people, and provided you packed so many people into the house that it could hold no more, you were not likely to be disturbed, but if there appeared room the Quartering Commission would put in some one else.

Turkestan is a great country for fruit. This is sold in kiosks in the streets of Tashkent and other towns. Naturally, owing to the increasing depreciation of the local currency, prices rose. This was put down to speculation. The Government then fixed prices for all fruit, and imposed penalties for selling or buying above the fixed rate: but they did not realise how interdependent commodities are, and the immediate result of this order was that no fruit appeared at all, and a fresh hardship was inflicted on the population. At this time I was stopping at a village some fifty miles from Tashkent, and here fruit could be bought for next to nothing, and cattle were being fed on the choicest melons. I found that owing to the high price of fodder, cartage was so expensive that it did not pay to carry fruit in and sell at the prices fixed, and the people of Tashkent were deprived of very valuable food. Very fine strawberries were on sale for a few days in Tashkent, but suddenly an order was issued nationalising them for the benefit of the Red troops, after which none could be obtained. The fruit-trees in the private gardens even were nationalised, and in the spring lists were made and the occupiers told that when the fruit ripened they were not to eat it as it belonged to the State. All such property as motor-cars, horses and carriages was of course taken, and as many pianos as were required were taken (naturally the best) for the Conservatory of Music. Private teaching of music and foreign languages, by means of which some of the 30,000 German and Austrian prisoners managed to pick up a living, was discouraged. The teacher was labelled a "speculator" and the employer a "bourgeois."

No private house was safe from requisitions. A party of soldiers or militia would arrive and say that your carpets were required to decorate the theatre in honour of the Afghan Mission or for some other reason. None of these things were, of course, ever returned. The Museum contained articles of all sorts requisitioned from private

houses, and even shamelessly labelled as such. Although in the beginning these requisitions or other oppressive measures were carried out by the genuine workpeople against the better classes, later the power got into the hands of more fanatical Bolsheviks and of the scum of the country, and workpeople who had been all in favour of the earlier pleasures and delighted in robbing those who were better off than themselves found themselves classed as bourgeoisie and robbed in their turn, until the whole country was and is groaning under a ruthless oppression.

The Grand Duke Nicholas (not the famous soldier but an uncle of the late Tsar) had lived for many years in Tashkent, but died during the war. His palace was nationalised and turned into a museum open to the public, and his widow was left there as caretaker.

Before Bolshevism came to upset the economic life of Turkestan the chief crop grown was cotton. Cotton production was so profitable that corn was not grown in sufficient quantities to feed the inhabitants, and had to be imported. The disturbed state of the country has put a stop to all this, and corn was grown. The nationalisation of land has now almost stopped this. No farmer was going to sow a crop which would be taken from him without payment, and in 1919 each farmer sowed sufficient for himself, his family, and a few friends. The position became so acute that the Government had to renounce the scheme of land nationalisation and do their best to induce farmers to sow. One result of the isolation of Turkestan was that they were deprived of oil, which was the fuel chiefly employed on their railways and factories. A little coal and oil is obtained from Ferghana, but the chief fuel had to be *saxaul* wood (*Anabasis ammodendron*), a bush which grows in the deserts. Even this became difficult to obtain owing to lack of transport facilities, as that near the railways had been cut down. At one time the railways burnt quantities of dried fish caught in the Sea of Aral.

The population of the towns were put on ration tickets. This entitled you to stand in a queue for hours, and then buy half or sometimes only a quarter of a pound of bread at a cheap rate. Occasionally meat or salt fish was given or cotton oil for cooking, "tea" made of dried apples, and perhaps monthly a piece of calico (nationalised from some merchant or private house), a box of matches, or whatever it was. Before the revolution cotton-seed oil was not used for cooking even by the poorest, but now you are lucky if you get any. It is also used for burning: the usual light in a house in Tashkent is a saucer of cotton-seed oil with some twisted bits of cotton-wool as wicks burning round the edge. The streets were quite dark, and trams ran only to take members of the vast bureaucracy to their business and back, and the public were not allowed to use them. Some houses still had electric light, but these favoured buildings were nationalised and the people turned out.

The Bolsheviks are attempting to force their form of government on the Mohammedan population, who desire none of it. The large

Mussulman urban population, mostly traders, suffer from the unrest and dislocation of trade.

In the country each Mohammedan village has nominally an executive committee ("Ispolkom"), but the election for this among the natives is purely fictional, as the people do not understand and do not wish to be bothered with an election. The actual fact is that the "Aksakal," or village headman, is made to call himself "Comrade the President of the Executive Committee," and some house in the village bears a notice-board "Headquarters of the Executive Committee," but there is, of course, no executive committee, and life is carried on much as before. The chief effect of the Bolshevik revolution on the native rural population is that everything is more expensive, and they are liable to be robbed by Red Guards or have their property confiscated. They pay no taxes, as the Government has no means of collecting any.

As the chief source of income was the printing press, the financial situation of the republic was appalling. Part of their system of equality was that all salaries should be equal. The monthly wage was 800 roubles paid in local Turkestan paper money, which was not backed by anything, and in which no one had any confidence; the result was that in this currency prices went bounding up until 800 roubles was insufficient. The Government then simply raised the salaries and printed more paper of higher value.

This system is still going on. In April 1920 the ordinary salary was 2000 roubles a month, while specialists were allowed more. This granting of extra pay to specialists is a distinct renunciation of the principle of equality.

When I left the country the Soviet money was worth one-tenth of a similar face value of the Nikolai or Imperial paper money. Gold and silver and even copper moneys were unknown. Small change was given in postage-stamps specially printed for the purpose on thick paper. A pound of tea cost 1200 roubles, 2½ yards of cheap calico 300 roubles, a box of matches 30 roubles. The purchasing power of the one-kopek note can be imagined when it required 3000 to buy one box of matches. This year I hear the price of a box of matches is 800 roubles—*i.e.* 80,000 one-kopek notes!

One result of the uncontrolled employment of this useless paper was that gradually the notes of smaller value dropped out of circulation and notes of higher value had to be printed. In January 1919 the highest denomination was a note of 100 roubles. Then notes of 250 were made, followed later by 500 and 1000, and now I hear that a million-rouble note has been issued. There can be no end to this system except the exhaustion of paper and ink.

All this time I was living in Tashkent in the guise of an Austrian officer. Most of the Austrian prisoners had by this time discarded their uniform, which was worn out, and wore Russian dress. I had several narrow escapes of being caught, and had to change my name and get fresh papers several times. One couple with whom I lived really believed I was an Austrian, and kept bringing me tit-bits of

information that they thought I should like to know, and asking me stupid questions about my country, and I had to simulate interest.

The first of May was a great day. The streets were hung with red (frequently old newspapers, which were for some time printed on red paper, as there was a shortage of other colours). Large crowds marched in procession carrying banners printed with the different trade union badges and the usual Bolshevik war-cries: "Long live the world revolution," "Down with the bourgeoisie," etc. All the school children were also turned out in procession, carrying small red flags in their hands and frequently wearing a wreath. One little girl, seeing I had no red badge, presented me with a bunch of poppies, which I wore. These processions gathered at the cross-roads outside the "Dom Sovieta," or Liberty Hall, where speeches were delivered and revolutionary songs sung while an aeroplane circled overhead. The Bolsheviks organised these demonstrations very well. Men in different parts of the crowd would hand out the words of the "International" (or whatever the song was) and lead the singing, and the people near would join in until the whole crowd would be singing. It was a very simple matter to make a speech at demonstrations of this kind. The crowds usually could not hear a word of what the orator was saying, but suddenly he would bellow out "Long live Red Russia," or "World Revolution," or "Red Army," or any such cry, or "Down with the Imperialists," or "exploiters," or "bourgeoisie." On this the band, which was always handy, played a few bars of the "International," and all the crowds clapped and cheered. Very few troops showed up on these occasions, as they were mostly away on the different fronts.

In July about 4000 men in first-class British uniform, with a few in Chinese dress, arrived in Tashkent. At first these were announced as prisoners captured from Kolchak's army in a great victory, but later they were welcomed as deserters, and took part in processions and demonstrations. The papers were full of jests about these men—"Tommy from Tomsk," etc.

The names of the streets and parks of the town were changed to perpetuate the memory of their leaders. The principal street in Tashkent had been called the Kauffmannskaya, after the Russian General who captured Tashkent. This was changed to Karl Marxkaya. There was also an Engelsky Prospekt, which had been the Moscowskaya, but very few even among the most rabid Bolsheviks could accustom themselves to these new names. They even changed the name of Askhabad to Poltaratsky, a Kommissar who had been shot.

In the centre of Tashkent was a group of statuary representing General Kauffman with a soldier planting a flag and another sounding a trumpet. This the Bolsheviks removed wholesale, and were about to replace it by a workman carrying a red flag. The only sculptor in the place, an Austrian prisoner, refused to undertake the job unless they refrained from painting the flag red. Apparently the Bolsheviks could not come to terms with him on this subject, and

eventually a bust of Lenin was put up: but as it was only made of mud, it dissolved with the first shower of rain. On special occasions this empty pedestal was decorated with photographs of Karl Marx and of the Kommissars who had been shot by Ossipoff's men in January 1919.

The streets of Tashkent are broad, with trees down both sides, frequently in double rows. These are poplars, mulberries, and acacias. The scent of the acacia blossoms on a spring morning was really wonderful. In the winter of 1918-19 about half of these trees were cut down for fuel, utterly ruining the appearance of the town. Each householder was given a tree standing in the street as a fuel ration

FIG. 5.—Street in Tashkent, showing untouched trees.

for the winter, and was obliged to make his own arrangements for felling and chopping it. A man possessed of an axe or saw could make a small fortune (in paper money) by lending it, and poor people who had no means of felling their tree and could not afford to employ labour must have been very badly off.

The Bolsheviks were very keen on education and what they called "kultur." The streets were placarded with advertisements such as "Get yourself educated," "Culture will be the saving of our revolution," etc.

The school lessons always commenced with the singing of a revolutionary hymn. The children were taught Communism and Bolshevism, and from the age of about twelve and upwards were encouraged to form Soviets who were able to dismiss and appoint their teachers. Sometimes a notice would be posted saying that

certain classes had, by a general meeting, resolved on a strike from a given date and hour.

The Government did their best to force every one to work. A man with a little capital saved from pre-Bolshevik days could live on this cheaply, as the exchange was favourable to him. A 100 rouble Imperial note could be exchanged for 1000 Bolshevik notes, and would keep him for a month as comfortably as it was possible under the circumstances. Consequently many of them were living in this way. The Bolsheviks wished to catch these people, so one night surrounded the square in the centre of the town, the public park, which had been turned into a private park for members of trade

Fig. 6.—Street in Tashkent, showing the cutting of the trees for fuel.

unions only, and raided every cinema, theatre, and place of entertainment. Every single person was then asked for their certificate of employment, one of the papers it is necessary to possess under a Soviet régime. Those who were not actually carrying them with them were all taken off to the various lock-ups and kept until the certificate was produced. I myself was going home about nine that night, when I came suddenly on a crowd of several hundreds, surrounded with soldiers, who were being hustled into a police-station, and I myself was fearful of hearing the cry "Stoi, Tovarish" (Stand, Comrade), which is the prelude to a street arrest. All those who could not prove that they were working were sent up by train the next day and forced to cut fuel for the railway at a small station some hundreds of miles up the Orenburg line.

About October I managed to get engaged in a branch of the

Bolshevik secret service. The Bolsheviks had always suspected that there were British officers in Bokhara organising the army with a view to an attack on them. They sent spies in to find out, but of these very few returned, and those that did brought wild stories.

I was supposed to have been two years in America, where I had learnt English, and volunteered for this (to a Bolshevik) dangerous job. I had to have an interview with the head of my department, a very violent Bolshevik, which went off all right, and, furnished with the best of secret documents, a Serbian (who had got me the appointment), his wife, and I left Tashkent by train. There were, of course, no passenger coaches, and we were crowded in goods vans,

Fig. 7.—The party crossing the desert.

with many passengers sitting on the roofs of the carriages. On reaching Chernaievo our van was cut off owing to a hot axle, and we were told we could go no farther, but must wait for the next train from Tashkent, which would come in two or three days; and, as every train was invariably filled up to the roof before leaving Tashkent, the prospect seemed gloomy. A secret interview with the station-master, however, resulted in places being made for men going on dangerous secret service for the Soviet Republic, and we proceeded. I had a few hours in Samarkand, and spent them in visiting the ruins of the fourteenth-century buildings of Tamerlane's capital, and took some photographs.

From Samarkand we continued our journey to Bokhara by train. Bokhara city is about ten miles from the railway, and at the time of my visit Bokhara was nominally neutral; but naturally, as the

Emir feared for his crown, he was not in sympathy with the Bolsheviks. I drove into Bokhara city, very glad to be out of Soviet territory. Here I remained two months. We left Bokhara, a party of about eighteen, including some guides, and travelled over the desert, crossing the Oxus at Burdalik and the Khushk-Merv railway line and Murghab River near Sari-Yazi. From here we had another stretch of desert to the Sarakhs or Tejen River and the Persian frontier. Here we had the misfortune to be intercepted by a Bolshevik patrol; but in the skirmish which ensued we got off free, save the loss of a little kit which fell from one of the ponies, and we wounded two of our adversaries. We crossed the frontier at the

FIG. 8.—Well (750 feet deep) at Yur Chilik in the desert between the Oxus and the Murghab Rivers.

village of Naurozabad, all of us thoroughly glad to be free from the tyranny of Soviet Russia. The villagers turned out armed to the teeth when they heard the firing. There was at one time a danger that they would fire on us, but this was averted, and I was well received and treated very well by the inhabitants. Not so my Russian companions. The Russians are cordially disliked in North Persia, and a great deal of this hatred is due to their having shelled the Holy Mosque of Imam Reza in Meshed in 1913.

During the whole of the journey to Meshed I had difficulty in getting accommodation and food for my Russian companions; though for myself and the non-Russian members of the party the Persians were most anxious to do anything they could. We rested a day in Naurozabad, and the next morning, with a small escort of Persian

cavalry, we travelled in a snowstorm to Sarakhs, where we remained two days as guests of the Governor, who helped us on our way to Meshed, which we reached four days later, on January 14, 1920.

## NAIROBI AND KENYA COLONY.

(British East Africa.)

By A Resident.

Nairobi, the capital of the Colony of Kenya, is now well known, as so many persons have gone there from Europe, some as settlers, some as traders, some as officials, some as hunters of big game. The following notes have been written by one who has long been a resident in Nairobi and Kenya, and who hopes that they will furnish useful information to any one intending to visit or settle in the colony.

The first question is *How to reach it*. There are two routes. The first is by the British India P. & O. or Union Castle lines from London or Marseilles to Mombasa, the coast port of the colony, by the most direct route through the Suez Canal, the time taken from London being on an average 25 days. The alternative route is *via* the Cape of Good Hope to Durban, where passengers for Mombasa tranship. This route would involve a journey of some six weeks, and is of course much more expensive. There are both Italian and French steamers to Mombasa, the former from Naples, the latter from Marseilles, but travelling by them is not to be recommended.

The railway from Mombasa to Nairobi is about 300 miles in length, and the journey occupies about 20 hours. The greater part of it passes through a veritable zoological garden, and hundreds of various kinds of wild animals may be seen grazing peacefully and taking little or no notice of the train. Of these may be mentioned Thomson's gazelle, hartebeest, dik-diks, wildebeest, zebras, ostriches, giraffes, wild pigs, and very occasionally lions.

Nairobi is situated about 5575 feet above sea-level, and its temperature is neither very high nor very low. In fact, its climate would compare very well with that of an English June or July. At the same time, sun-helmets must be worn between the hours of 8 A.M. and 4.30 P.M., a protection the newcomer is often apt to disregard, sometimes with serious results to himself. He forgets that he is in a town in close proximity to the Equator.

Ten years ago Nairobi might have been called "Tin-town" owing to the number of tin corrugated buildings—in fact the business portion consisted of practically nothing else. A visitor of that period would hardly recognise the capital of Kenya now, such a marked change has taken place in a comparatively short space of time. The tin shanties have been succeeded by large buildings of two or three storeys, tea-rooms abound, and there is a theatre which would be a credit to any provincial town at home. Where formerly one had to walk or take a

dirty rickshaw, a taxi can be had at nearly every street corner, and during the past couple of months a motor-bus service has been inaugurated.

As in the British Isles, housing accommodation is insufficient for the ever-increasing population, and, as building material is so costly, houses are not being erected. Nairobi is a very straggling town, necessitating very often a journey of four miles to visit one's friends.

Children are exceedingly healthy up to the age of about seven or eight, after which it is advisable to send them home. There are several kindergarten schools at Nairobi, and there is also a Government school for higher education. There are, however, no universities in East Africa, and those studying for the learned professions would have to complete their education in Britain or South Africa, the latter having not only excellent facilities for higher education but also being only ten days' distant from Nairobi.

The European has not been long enough in the colony to determine how a second generation of children would thrive. Personally I am of opinion, from the few youths of eighteen whom I have seen who were born and bred in the colony without having gone to Britain, that their offspring would not turn out to be the healthy colonists one sees from the sister colonies of South Africa or Australia.

With reference to *Domestic Servants*, higher wages are commanded in Nairobi than in any other part of East Africa. Servants are for the most part easily obtained, newcomers having soon numerous applicants. The usual wages paid in Nairobi for more or less indifferent service are as follows:—

| | | |
|---|---|---|
| Cooks, | 30 to 35 | florins per month. |
| Head Boy, | 20 ,, 25 | ,, |
| 2nd ,, | 10 ,, 20 | ,, |

The term "florin" is now substituted for "rupee." It is worth 2s. Goanese cooks are numerous in Nairobi, their wages averaging from 60 to 90 florins per month. Swahili boys make the best servants, but they are the most expensive.

The average rent paid for a good unfurnished house in Nairobi is from 200 to 300 florins per month. There are no rates except water rates, which vary according to the monthly amount consumed, usually 24 florins per 1000 gallons. Previously there was a poll tax of 15 rupees per annum. An income tax, however, is being introduced from January 1921.

There are two *Rainy Seasons*. One, called "the long rains," commences towards the end of February and lasts for two months. The other, called "the short rains," occurs in October and varies from three weeks to a month. It must not be imagined, however, that the rain is continuous during these periods. It may last only an hour or two at a time, but occasionally, especially during the long rains, there is a heavy downpour. The long rains are usually accompanied by cold nights, requiring good fires in the houses. The lowest temperature recorded is about 49° Fahr. with a mean temperature of 68°. The average yearly

rainfall is about 44 inches. To the passing stranger the climate is delightful, but residents feel that after three years a change to Britain is necessary for their continued health.

As German East Africa since its acquisition by Britain has been termed "Tanganyika Territory" from the great lake of that name, so British East Africa has been named "Kenya Colony" after Mount Kenya (17,000 feet high) to the north east of Nairobi.

The best time to go to the Highlands of Kenya Colony is between May and November. Nairobi contains excellent hotels, where travellers will find every comfort.

Settlements and farms throughout Kenya vary in size, but the average is about 5000 acres. The export trade consists of coffee, fibre, beans, maize, wheat, hides and skins, wattle and wool, flax and copra. Coconuts and rubber are exported from the coast area. Trade is considerably handicapped by all cargo being taken to or off the ships in lighters, there being no deep-water pier. This state of matters will soon be rectified, as such a pier is about to be built.

In recent years there have been labour troubles in Kenya Colony as in other parts of the world. Ninety per cent. of the labour of the country is obtained from the Kavirondo and Wakikuya tribes. The former are more akin to the Zulu than any other East African race. Unlike other tribes, they are very fond of travelling and are found in nearly every part of the Colony, although originally hailing from the most northern part on the shores of Victoria Nyanza. The Kavirondo is a good worker if he can be persuaded to settle down, but he is a restless individual and likes to be constantly on the move. The Wakikuya is a slow sleepy member of the Bantu race, and has to be constantly under supervision when doing any kind of work.

Great space has lately been devoted by the newspapers to the treatment of native labour by white settlers, and because of a few isolated cases the whole white community has been assailed. The few instances which do arise occur on the part of settlers (usually new) who are utterly inexperienced in the treatment of labour. The native is at all ages a child, and as long as he is punished justly and not brutally he has no ill-will. But the employer who makes a habit of corporal punishment is a menace to the country, and the sooner he leaves it the better it will be for all concerned.

The employer who is unable to control his temper is another member of the community the country has no need of, for it is important that a European should preserve his dignity if he wishes to preserve the respect of his labourers. The native looks up to the European, and like a child copies everything good or bad in him. If therefore the European has a high standard in everything, and treats his natives accordingly, he need not fear, but should his standard be low, labour troubles will meet him at every turn. Besides this, many cases of discontent between masters and natives are owing to the utter disregard by the former of the comfort and general life of the latter. An employer ought certainly to study the native thoroughly before attempting to manage him.

In settlements, the usual wages received by natives are from six to

ten florins per month. In addition, 2 lbs. of mealie flour are issued daily to each labourer and usually a blanket is given.

There are several native *Reserves*, such as Kavirondo, Wakikuya, Lumbia, Nandi, and Masai. European settlements in their vicinity have naturally better chances than others of obtaining labour. Natives will work more readily near their homes than at a distance from them.

Recently the taxes on the natives have been considerably increased, but it is very doubtful whether this will have the desired effect of obtaining native labour from the reserves.

A great deal has been written lately as to the amount of *Capital* required by any one proposing to settle in East Africa. It is not a poor settler's country, and to start with less than £4000 capital would be dangerous. To begin with, the £4000 is at once reduced by one-third, owing to the rate of the exchange. Assuming that, as is likely, the farm would be some miles from the nearest railway station (as nearly all the farms on the railway line are already taken up), carts and oxen would have to be purchased, a very expensive matter in these days. Numerous farm implements would also have to be obtained, a house would require to be built, and labour to be procured.

The farmer would have to live for three years at least before he received any return for his money. Virgin soil costs about 10 florins per acre, and considerable clearing would be necessary before planting took place. It is apparent, therefore, that an estimate capital of £4000 is by no means excessive. As Lord Cranworth recently stated, East Africa is the most expensive country in the world to live in. Necessities of life are fairly moderate in price, but everything else is extremely expensive.

The immigration of *East Indians* into the Colony is a problem requiring to be solved. Major-General Sir E. Northey, the present Governor, has done, and is doing, much to ventilate what is known as the "Hindu question." There are in Kenya very rich firms of East Indian merchants and traders, and at present the East Indian shopkeeper predominates. The presence of these Indians in the Colony is not desired for many reasons. One is that their effect upon the natives is bad. The natives distrust them, and have reason to do so. A very large percentage of the trade of the country passes through East Indian hands, and 99 per cent. of the money made by that trade, instead of benefiting the Colony by being spent there, finds its way to India. For this reason alone the presence of the East Indians is undesirable. By remaining in the Colony they to a large extent stop its progress. On the other hand, they are British subjects, and to attempt to dislodge them would be to arouse strong political feelings both in India and in Britain.

Ten years ago there were few *Jews* in Kenya Colony, but now they are numerous and form an exceedingly thriving population. In any financial undertakings in the Colony Jewish money plays a leading part. They subscribe liberally to philanthropic schemes. Jews are rarely out of employment in Kenya, and men who arrived there with only a few

pence now possess hundreds of pounds. They are a law-abiding race, and conduce to the welfare of the community.

According to *The Statesman's Year Book for* 1920, British East Africa had an area of 246,822 square miles, with an estimated population of 2,807,000, including 5362 Europeans and 17,000 Asiatics. For the year 1918-19 the value of the imports (excluding Government stores and treasure) amounted to £3,397,810, and that of the exports (including also those of Uganda and the Congo) amounted to £2,498,574.

A valuable official pamphlet entitled "General Information as to the East Africa Protectorate" was issued in 1919 by the Overseas Settlement Office, 57 Victoria Street, London, S.W. 1. It contains a Sketch Map of the Protectorate published by the Public Works Department on a scale of 54 miles to an inch. (Price 6d.) There is also an excellent handbook on Kenya, Uganda, and Zanzibar prepared under the direction of the Historical Section of H.M. Foreign Office, published (Price 2s. 6d.) by H.M. Stationery Office (25 Forth Street, Edinburgh) in 1920.

## THE RESOURCES OF THE LOWER ST. LAWRENCE VALLEY.

By Roderick Peattie, Assistant Professor of Geography, Ohio State University.

(*With Sketch-Map and Illustrations.*)

Water-Power.—No one can know the country of the Lower St. Lawrence who does not know the life of the lumberman in the winter woods, the exhilarating adventure of the spring drive, and the sweet-smelling mill in the summer time. Indeed, the signs and tokens of this life are inescapable. At every stream's mouth stands a saw-mill close by the wharf. Not a river in the region which has not at some time been the scene of log "drives" to a mill whose wheels were turned by the same stream. The river, which derives its life from the very forests whose destruction it is aiding, is forced by man not only to carry its burden of logs, but to turn the wheels that complete the destruction of the logs with sharp saws and merciless pulp-grinders.

The river is the life of the place, the sole medium of transportation, the romance of the wilderness. Of all the natural resources of Lower Canada there is none so significant, so potent to-day, or so prophetic of prosperity for the coming centuries, as the water-power which turns the wheels of the great lumber mills, which grinds the grain for the habitant, and churns the butter or washes the wool for his wife. The Province of Quebec has an estimated water-power of 8,000,000 H.P., of which but 300,000 has been developed [1].* The importance of this in future economics may be seen when one realises that to-day one H.P.-year

* The figures refer to the Bibliography which will appear at the end of the paper.

of energy developed with coal costs from $45.00 to over $60.00, while hydro-electric energy can develop the same unit for $15.00.

The water-power of Quebec is the result of several physiographic factors plus the advantage of sufficient precipitation. The streams have that constancy of flow throughout the year that is essential to large developments. They are, of course, subject to meteorological variations, but given a fair year for precipitation, the forest-covered slopes

The Falls of Montmorency.

*Photo by Prof. S. F. Clark, Williams College.*

and divides, the innumerable lakes and smaller reservoirs unite to maintain a constancy of flow which means more dollars than can be estimated to the industries of Quebec. But it takes more than water to make a waterfall. The great fault escarpment on the North Shore; the topographic breaks between the mountains and the lowlands on the South Shore; and the lowest terrace encircling the estuary, combine to create breaks in stream profile that cause the water-power.

The best-known power development of Lower Canada is the Falls of Montmorency on the Côte de Beaupré. On a Sunday a magnificent

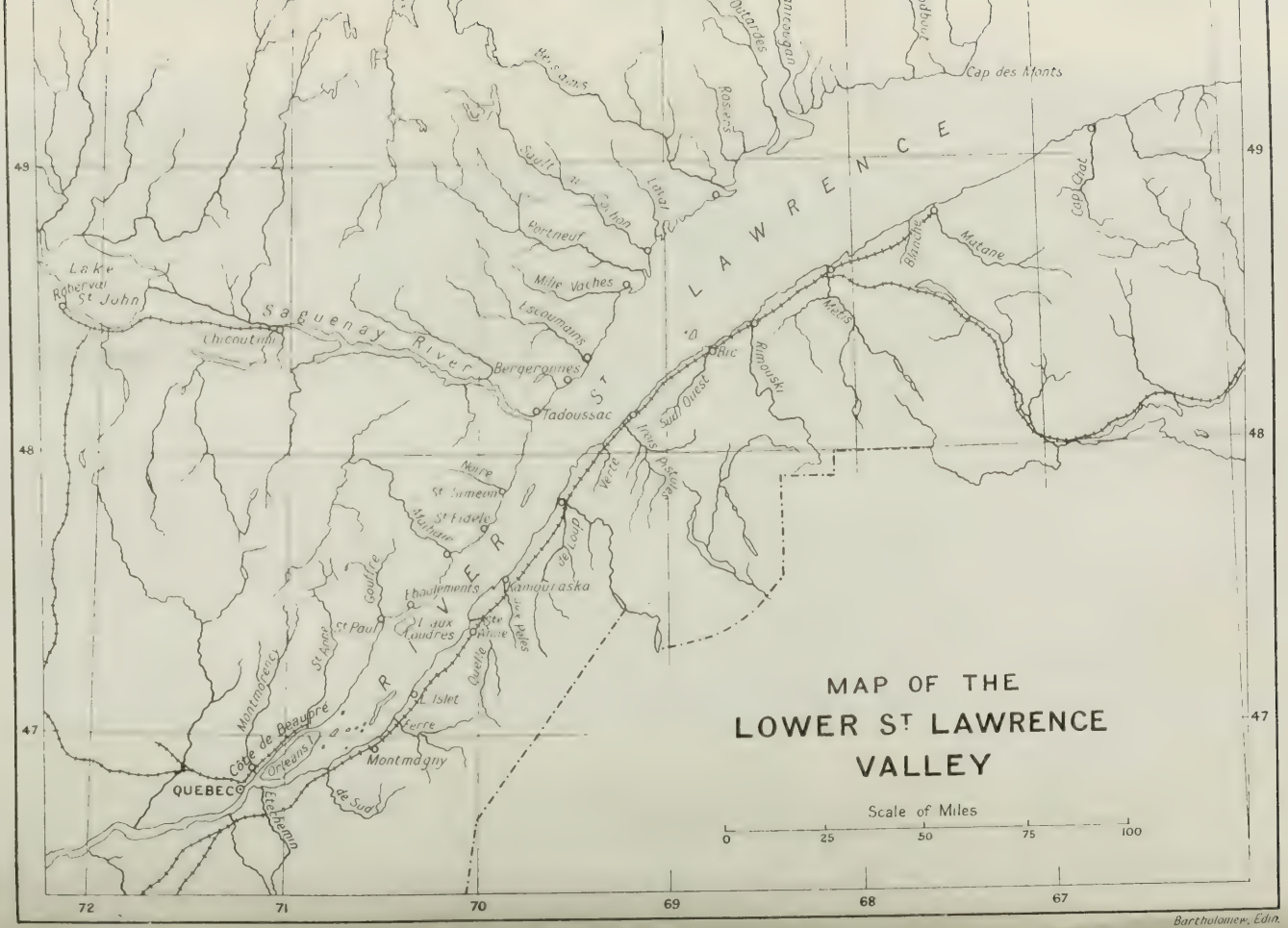
stream thunders down a sheer cliff of 268 feet. On week days its 5000 potential horse-power is diverted to a near-by cotton mill and to run the street-car system of Quebec and the Côte de Beaupré. At night it lights the city.

There are to-day few streams that are not harnessed in the interest of the log-products industries except in Quebec Labrador. However, the water-power is nowhere nearly utilised to its fullest extent, for while there are small mills on most of the streams utilising some of the falls, many more falls could be utilised, and bigger projects could be developed on many of those already in service. The larger streams of the Côte de Beaupré alone are capable of developing 13,500 horse-power [2].

Let us enumerate some of the major and more accessible falls. The Rivière Ste. Anne, between the parishes of Ste. Anne de Beaupré and St. Joachim, has a final *chute* before joining the St. Lawrence some two miles distant. Encased in a deep narrow gorge, it is "one of the most beautiful horrors which nature has revealed to the human eye." It is capable of developing 10,000 H.P. [2], with a possible minimum of 2500 H.P. [1]. On the same river near St. Féréol there is a series of cascades 375 feet high, called the "Seven Falls," from which 5000 H.P. will some day be claimed. Rivières Gouffre, Malbaie, Noire, and many of the smaller streams in this section have water-power developments. Where the Gouffre comes from the plateau down into the head of the valley there is a splendid cataract. The headwaters of Rivière Saguenay represent one of the most remarkable collections of water-powers in the world. Though these are outside of our region, they are of prime importance to the immediate hinterland through their 16,350 H.P. that is turning mills to-day. It is possible to draw 214,800 H.P. from these falls [1].

There is no stream of any size on the coast north from the Saguenay on which a water-power of importance could not be developed. Les Bergeronnes, Les Escoumains, Portneuf, and Sault au Cochon all have mills. The Bersiamis, Outardes, and Manicouagan Rivers are capable of supporting huge hydro-electric industries, and several of them will do so shortly. The Manicouagan, of which the power rights have been leased from the Provincial Government, has a length of 350 miles, drains 15,000 acres, and has latent—in the first falls alone—65,000 H.P. Flowing through vast forests of birch, aspen, spruce, poplar, balsam, fir, and pine, it has many cascades which in the future will inevitably be developed to turn wheels to pulp or concentrate and refine the minerals that are sure to be found as exploration advances.

The falls of the South Shore have little of the grandeur and the power of the North Shore, but they are more regularly distributed and more accessible. An official list includes all the rivers of the shore. The more important ones are the Matane, Metis (with beautiful falls), Rimouski, du Loup, Kamouraska, Ferre, and du Sud. There is not a town on this shore that has not its wood-working industry, and the greater number of the mills are propelled by water. Eighty per cent. of the power used in the Province of Quebec is water-power, and in the




Where a river has the same name as the stream on which it stands, e.g. Malbaie, the name is not repeated.

lower valley a much larger percentage could be quoted without fear of exaggeration [2]. It is notable that in the Province of Quebec, taken as a whole, there has been but 975,000 H.P. of the possible minimum of 6,950,000 H.P. developed. A large proportion of this unused power lies in the counties which we are especially considering. Studies with more complete data have been recently prepared but are not yet published. The above figures, however, do not give a true picture of the economic value of these falls. Many of them are so inaccessible, so remote from market or resources, that at the present they have little value. But so long as fire or man does not devastate the headwaters of the streams, these falls will go thundering over their cliffs unheeded

The Falls of Bas la Baie. The stream turned the wheels of two community mills.

except by birds and beasts, wasting their energies, but never spending them until civilisation pushes into the wilderness and diverts the noble waters into an ugly but efficient turbine.

But the statistics of the Government are cold. Nothing is said of the many community grist-mills and the little hydro-devices that serve a single farm. The torrential stream, particularly of the North Shore, is to the habitant to-day what the gas engine is to the Illinois farmer. I think of the grist-mill of Jean Baptiste La Rouche, in the valley of the Gouffre. The little turbine, that replaced the huge, ancient water-mill, ground the grain of the neighbourhood. He had also a small wheel that operated a hammer that mauled wool as it was washed in the clear mountain water. Within three miles of this place I saw two other such wheels. On a small farm at the bottom of a ravine on the shores of

the St. Lawrence near Ste. Irénée, a butter churn had been harnessed to a rivulet. The French-Canadian has turned his inventive skill to the utilisation of the "white coal," but a lack of industrial purpose (a matter of historical consequence) and no great surplus of capital have left most of the larger possibilities undeveloped or in the control of English and American enterprise.

The Provincial Government of Quebec fully realises the future importance of water-power, and judiciously refrains from wasteful exploitation. It knows that the water-power is a permanent part of the public domain, and developments are encouraged only after the sense of responsibility of the developer has been ascertained. Altogether the securing of water rights is far from simple. The applicant may have to obtain one title from the Crown and another from an individual. All navigable rivers are of the Public Domain. This is also true of all streams whose rights have been sold since 1804. Just what is navigable and what is not may be uncertain, hence in some cases the advisability of the double purchase of title. Falls with a capacity of less than 200 H.P. are sold outright. When greater than that the concession generally takes the form of an emphyteutic lease. The conditions of such a lease are interesting in that they reflect the attitude of the Government towards this resource.

The duration of the lease is from 25 to 99 years, depending upon the importance of the falls and the amount of capital required for the development. There is a fixed yearly rental and an additional yearly charge of 10 to 35 cents for each horse-power produced, the charge being revised every twenty-one years. Several years are given the developer to begin his improvements, but within a certain time he must make an instalment in proportion to the importance of the falls. Thus the property remains the possession of the State, the user must develop it efficiently, and the rental charged may be adjusted to the shifting economics of the times.

THE FORESTS.—The forests are the wealth of Quebec[8]. To the tourist who sees the countryside from the river steamer, especially the North Shore, the forest seems a continuous stretch in which the settlements have done little more than make marginal clearings. To the hunter or lumberman who looks off from high on the Laurentides, the scene is one of trees to the horizon, and the sense of the immensity of the forest is heightened by a knowledge that the green carpet extends to Hudson Bay. The lowland of the South Shore is cleared, except in those places where the highland comes to the water's edge, as between Rimouski and Trois Pistoles. But the mountainous areas are wooded. This may not seem entirely true to one who rides along one of the upland roads that penetrate the wooded back area, for along these roads there are occasional clearings for farms. Between the infrequent cross-roads, nevertheless, are great continuous stands of forest where there is not a single farm. On both shores every stream that is of any considerable length or volume has drained, and is still draining, the forests of their trees as well as their waters.

The northern forests are coniferous, and the southern mixed. To

one who visits the region in the fall of the year and sees the almost unbelievable display of brilliant deciduous trees this statement may seem erroneous. But the portion of the forests seen by the traveller is not the lumber portion. The coniferous element in the north is economically the important one. The pine, spruce, balsam, hemlock, and cedar represent three-fourths of the trees of economic value. These trees are particularly well adapted to meet the difficulties of Laurentian or Gaspean soils and water conditions.

It will be remembered that the hills were stripped of their soils by glaciation, and then barely covered again. The thinness of the soils on the steeper rock slopes prevents a normal water table, and forces upon the vegetation habits of aridity. The tumbled deposits of the valley

One of the last clearings between the St. Lawrence and Ungava.

bottoms have created lakes, swamps, and muskegs, while about the shores of the lakes are sandy beaches. Valley trains have swept the countryside with sand and gravel streams, and the soils of the ground moraine are coarse.

It is found upon examination that the white pine (*Pinus strobus* L.) accommodates itself to poor soil; that it clings to almost bare rock; and that it thrives upon the sandy points that extend into the lakes. It climbs the Laurentides like a mountaineer. The red pine (*Pinus resinosa* Ait.) is also well adapted to dry and sandy conditions. The Jack pine (*Pinus banksiana* Cam.) grows on the highest divides of the South Shore; on the North Shore it finds its natural habitat, and is as common on the colder coasts of Quebec Labrador as in the valleys of the Escoumains and Manicouagan Rivers. It grows under conditions ranging from rocky peaks to dune sand, but though so prolific it has little commercial value. So truly does it adhere to the poorer soils that

a legend has arisen that the tree is demon-haunted; it is supposed to sterilise the soil, and as a potion to sterilise women.

The white spruce (*Picea canadensis* Mill B.S.P.) grows also in extreme topographic conditions and adapts itself to the swamp as well as to the drier hillsides. A pure stand of white spruce is supposed to indicate that the soil is too poor for other trees. The black spruce (*Picea mariana* Mill B.S.P.) in portions of the hinterland forms 90 per cent. of the tree growth. The cold swamps support stands so thick that the sun's rays do not penetrate to the ground. As well as being dominant in certain sphagnum bogs, it may give character to forests of sterile soils. The balsam possesses the same wide range. It (*Abies balsmea* Mill) and the cedar (*Thuja occidentalis* L.) are found on both sides of the river and under a large variety of moisture conditions. The hemlock (*Tsuga canadensis* (L.) Carr) has comparatively few requirements as to soils. The larch (*Larix laricina* Koch), which is a native of the dreary wastes of Ungava, is found here only in the colder swamps.

Of the deciduous trees the life requirements are somewhat more rigid. The poplars and the aspens have their special demands, but accommodate themselves to the lighter soils with the exception of the Balm of Gilead or cottonwood (*Populus deltoides* Marsh), which thrives only on the rich alluvial lands of the river bottoms and does not endure well the climate of the North Shore. The American elm (*Ulmus americana* W.I.L.) also requires moist alluvial lands. The birch is pre-eminently the cosmopolitan of the deciduous trees, accommodating itself to what would be either an excess of moisture or a deficiency of it to most other trees. The sugar maple (*Acer saccharum* Marsh), one of the most useful of the hard woods, has more rigid requirements, preferring the southern slopes and rarely growing upon the plateaus. The beeches do not stand the rigour of the climate as well as the other species. The American beech (*Fagus grandifolia* Ehrh.) requires a gravelly soil on a calcareous base—a set of conditions which is found in a number of places on the North Shore. The white ash (*Fraxinus americana* L.) does not grow north of the estuary. The black ash (*F. nigra* Marsh) demands a certain amount of moisture[4].

Thus we have an association of trees, comprising many of the more common species which are equipped to grow under conditions unfavourable for most forms of life. That there is a heavy forest growth, then, does not necessarily mean that food crops could be grown there. Much of the soil is thin, not a little is stony, and, being thin and stony, it is without a permanent water-table. There is also a large proportion of swamp land, likely to be too cold for most types of vegetation. There are, as we have seen, trees to fit the most unfortunate of these conditions. Indeed, there are trees which accommodate themselves to the entire range of environmental circumstances.

That trees grow in a country is not all that there is to the economic aspect of a forest. Trees must grow in sufficient numbers, must have usable qualities, and must be available to centres of consumption.

The pine, the spruce, the balsam, the hemlock, and the cedar repre-

sent three-fourths of the trees of commercial value. Although the stands of pine, cedar, and hemlock have been seriously depleted, the spruce seems inexhaustible. In talking with a surveyor in Chicoutimi I was told of timber cruisers who had gone up a tributary of the Saguenay to prospect for black spruce. Their mission was to determine whether there was sufficient black spruce to justify the construction of a large mill by one of the most important pulp concerns in the region. In two weeks the cruisers came out of the woods saying that they had seen enough black spruce to keep the mill going for 100 years, and that they did not go farther.

Hence the mills on the North Shore are pulp- and lumber-mills. Malbaie, for example, has a pulp-mill [5]. Baie St. Paul cuts logs into the two-feet length needed for the pulp-crushers, and ships them to the region above Quebec; Rivière Noire has a saw-mill. All the little towns have wood-working industries. Baie St. Paul has a sash and door factory, a spool wood-mill, and two saw-mills. Les Eboulements, high on the plateau and without water-power, has two wood-working shops—saw-mills. All the little towns sell cordwood. St. Jérôme does nothing else. Beyond the Saguenay lumber is the main source of livelihood. Les Bergeronnes, for example, supports two lumber merchants, and has a large saw-mill turning out lumber and shingles, as well as a small mill. Bersiamis, the fishing village, has a large mill. St. Tite, the little forest hamlet back of St. Joachim, with only 1200 inhabitants, has seven lumber merchants, two saw-mills, one saw- and planing-mill, one factory for axe handles, and another for wooden ware [6].

In contrast to the North Shore, south of the St. Lawrence there is not the universal predominance of conifers, and the presence of hard woods has given a different character to the log-products industries. Also the less difficult problem of transportation has allowed the railways to haul the hard woods to mills outside of the area. Cherry is the wood mainly sought [6]; the maples have been little drawn upon. The birch seems inexhaustible, not so much from its abundance, but because of its rapidity of growth. Cedar is rapidly disappearing, more than half in the Temiscouata district having been cut [7]. The shingle factories of Matane and Rimouski use large amounts of this wood. In Temiscouata and the Gaspé—including areas to the east of our region—there are made annually 40,000,000 shingles, 500,000 railway ties, a large number of poles and squared timbers for trestle work, and fence posts, all from cedar.

While many industries may call upon a single species, a single industry may make demands upon a great number of different kinds of trees—witness the wagon and sleigh business, which is well represented in all the counties of the South Shore. The woods used in the manufacture of vehicles are of nineteen different kinds. Of the ten important ones six are hard-wood deciduous trees, one is a soft deciduous wood, and the other three are coniferous. Birch, both yellow and sweet, is used in every part of the frame and spokes. The coniferous woods, spruce, pine, and balsam fir, are used for the wagon boxes. Ash and oak are used because of obvious virtues. Maple wood is stiff, and is used for

frames. Hickory, the tenth wood on the list, has virtues which surpass all the others, but unfortunately it is scarce.

The County Kamouraska is a rich farming centre. The land is good, and the farming communities support prosperous villages. As I saw the country it was fair to look on, and the houses were neat and cleanly whitewashed. Yet give attention to the record of several of the main centres of this farming country. St. André de Kamouraska, with a population of 500 in the entire parish, has a saw-mill, a factory for threshers, another factory for agricultural instruments, and quaintly enough we may add a spinning-wheel shop. Ste. Anne de la Pocatière, the home of the principal farming school of the South Shore, has 2412 inhabitants in the entire parish, and supports two pulpwood merchants, one saw- and shingle-mill, one saw- and planing-mill, and a furniture factory. Little St. Bruno, of about 500 people, has four saw-mills, one lumber-mill, and two furniture factories. St. Pascal, population 2357, makes sashes and doors, school furniture, threshers, has two saw- and planing-mills, three saw-mills, three lumber merchants, and one pulpwood mill. This record is of a country rich in tillable land. Let the community be one of indifferent soils, of narrow lowlands, and of rich forested uplands, and it is easy to imagine that Kamouraska would scarcely be in a class with it, from the point of view of the relative importance of the log-products industries.

These industries take on varied forms. Lumber-mills are the most common and the most important. Mills for grinding pulpwood hold a second place. Then a long list of factories putting out divers products follows. The products include agricultural implements, wagons and sleighs, furniture (especially chairs, school furniture and church furniture), boxes and crating, coffins, tool-handles, and above all else, sashes, doors, and building material. Of minor importance are wooden-ware, spool-wood, spinning-wheels, and articles of small size and of slight significance.

Hardly in the same class, but nevertheless a log-product's industry, is the cutting of cordwood for fuel. The amount of cordwood produced for local and other consumption is very large. Unfortunately the Government statistics of recent date do not include any wood-cutting save that done upon the farms. The provincial figures do not differentiate the counties, and therefore the significance of cordwood as a forest product in the region we are considering cannot be ascertained. The relative importance, it is fair to assume, is the same for the smaller area as for the whole province. Thus, wood cut for lumber stands first in importance. Firewood comes second, and pulpwood third. Following in order are posts and rails, cross-ties, square timbers and wood for miscellaneous uses[3]. In order of importance, the trees handled by the saw-mills of Quebec are spruce, white pine, hemlock, red pine, cedar, balsam fir, jack pine, basswood, maple, ash, tamarack, poplar, elm, oak, beech, butternut, black walnut, and hickory. In the woodpulp mills spruce was of first importance, and poplar of second and very slight importance.

From an early date it has been the policy of the Government to

conserve the forest. As early as 1731 the French Crown was giving seignorial grants with the reservation that all good oak timber was to be kept for naval construction. The English régime brought about a closer supervision of the forest, and Governor Murray was instructed to grant to settlers only such lands as did not have valuable and accessible forests. These were to be kept in the interests of the navy [1]. By 1826 the policy of conservation had taken on the form of licences, which incidentally has been one of the greatest sources of revenue to the province. These licences were granted on a stumpage basis to the highest bidder and carried with them certain restrictions. It has been increasingly difficult to obtain such licences, and between 1906 and 1913 but one was granted. A far-seeing type of policy in favour of conservation is the regulation that requires all timber cut in Quebec to be manufactured in Canada.

The Government in dealing with forests has divided them into five classes. The forests not in timber limits form the greatest reserve. These are the forests which are too inaccessible to have suffered from the axe of man, and for the present are not of concern. The only devastators are fire and the natural enemies and handicaps of a virgin and unsupervised forest. The second class of forest is the one of first importance in the lower valley, namely, forests leased on timber limits. These are leased to the highest bidders at sundry prices. Few leases are given now, and the land available for this purpose is being taken up by the settlers, until, within our region, there are less than 68,800 square miles left. The private forests form the third class. These are mostly in small parcels of varying stands; a few, like the seignorial grants of Beaupré, are large. One of the main sources of revenue on the small lots is maple sugar and syrup. This class has no restrictions placed upon the cutting of wood. An interesting but minor class, especially in the lower valley, is the forest land which the Crown has set aside for townships. These are for local purpose—mostly fuel—and the foresight is European in character. The lands used for this purpose were uncultivated, vacant stretches.

In the interests of the forests, water-power, game, and fish, a series of parks and reserves have been created since 1905. A number of these are in the hinterland adjoining the shore of the estuary. The largest and the best known is the Laurentides National Park, occupying portions of Montmorency and Charlevoix Counties and extending beyond, covering in all over 300 square miles of magnificent forest. On the South Shore besides the Gaspé Park, to the east of Rimouski, there is the Rimouski Reserve of 1250 square miles, and the Temiscouata Reserve of 227 square miles.

It is natural that the growing scarcity of wood should have produced a more active cutting of wood from off the privately-owned lands. From them comes the bulk of the cordwood, occasional logs for the local saw-mill, and most of the pulpwood exported to the United States (the regulation that wood cut shall not be shipped out of Canada, except as a manufactured product, extends only to the public lands). Counteracting the destruction of trees is the maple grove, which is preserved

as a well-cared-for stand, for in many cases it provides a source of income per acre that is equal to good farming land. But already in all of the counties of the South Shore many of the farmers have exhausted their own woods and are buying fuel and building material. There is a movement on foot to reforest these lands, and a public nursery has been established with that end in view.

Fire, of course, is the most destructive enemy of the forests and the most wasteful. More timber is felled annually in this way than by the axe. In 1825 an extensive conflagration destroyed most of the timber in the rear of Kamouraska and the adjacent counties. In the early seventies of the nineteenth century the Saguenay and Lac St. John region was swept by one of the most destructive fires on record[1]. The fires are from the usual causes, and the usual legislation has been enacted for their protection. The spruce bud-worm and the larch saw-fly have been added to the deadly enemies of the forest. The latter insect destroyed almost all the mature tamarack. The Government has gone further than legislation, and there is now a forestry school and a forestry service which is supervising the cutting on provincial forest lands, carrying on reforestation and other technical works, and exploring the vast unexploited sections with a view to the prosperity of the future.

This forest environment is so dominant a note in the complete picture of the French-Canadian that it cannot but be potent in moulding the life of the habitant, and any student of the people must appreciate its significance. There are few men in the Lower St. Lawrence Valley who have not been concerned, at one time or another, with the forests or their products. Annually, in September and October, numbers of men—shantymen they are called—go into the lumber camps. As soon as the snow flies a second group makes the seasonal migration—these are the farmers and their sons, who have stayed to see their crops safely in and who in many cases have teams which they put at the service of the lumber companies. They arrive in time to "snake" the logs out over the snow. The men who went into the woods with the first lot are principally from the lumber-mills. The force of the Saguenay Lumber Company operating a mill at Les Escoumains, in the summer of 1916, consisted of some 135 men. These same men went into the woods to cut, during the winter when the mill was shut down, and their number was augmented by as many again.

The life is not to be painted in dark colours. The vigour of the experience of the winter woods, the half out-of-door life in the mill in summer, the silence of the snow and the camaraderie of the logging camp, the contrast of the life of the mill town at the river's mouth, all offer their vigorous human pleasures, and the more simple the mind the greater the content under these conditions. The cabins of the crew, the cook-house, the stable, all built of logs, comprise the living quarters of the twenty to sixty men of the crew. Cut off from the rest of the world by the almost impassable snowdrifts, in the silent woods in the day time, crowded in the bunkhouse at night, this little community has no outside influences—no cultural contact—whatever, and the only stimulation is that given to health.

There are also the wood-cutting towns. No small amount of cord-wood is shipped on sailing vessels for fuel to the river settlements or to Quebec. Such towns as St. Fereol, St. Tite, St. Jérôme, and fifty little unnamed, seasonally-inhabited ports or valleys along the North Shore ship out cordwood. The pilot chart of the coast mentions nearly every *baie* or *anse* as being the scene of the loading of schooners which lie up on the mud flats. The wood cut on the South Shore is consumed in the immediate neighbourhood. The social significance is that, though a man may not become a lumberjack, he almost invariably will go into the forests at some time in his life to cut cordwood. This may mean a small camp in some little snow-covered valley, or it may mean migration to an organised wood-cutting settlement where rude houses provide shelter. However, in some regions a man may go less than a mile from his house and be surrounded by enough timber to keep him employed indefinitely. There is also the man who owns wood-lots, and does a small jobbing business in logs. Lastly, there is the little shop or mill in the smaller towns, and the important saw-mill or furniture factory in the larger towns.

Naturally, having affected the activities of the French-Canadian so greatly, the forests inevitably have their effect upon his mental attitude also. Suffice it for the present to state that one of the greatest problems of early colonisation was the difficulty of organising a population that was called by the forest to hunt, fish, and trap. The *voyageur* of the early days flung aside the burdensome problems of the colony, to push his canoe along lonely streams whose bends enticed him to explore farther and farther into the silent places he came so to love.

The Tourist Industry.—There is another asset which plays its part in the story of this section. It is beauty. Men and women come from the east and the west, from far provinces, from the United States and from over seas to find refreshment amid these great forests and beside these noble rivers. And not alone do the solitudes appeal to them. They love the quaint towns with their simple, almost patriarchal, life. The hills and cascades, with their wildness and loveliness, comfort the city-wearied. To leave a complicated city dwelling behind and to take over a habitant's cottage, furniture and all, is to return to the primitive, and it has become quite the fashion to do this. Kamouraska, Rivière du Loup, and Cacouna are watering-places along the South Shore. Bic is a picturesque and secluded hamlet, with good salmon fishing. Metis and Sandy Bay are resorts. The North Shore is even more charming, with its well-known Côte de Beaupré neighbourhood, Malbaie, Tadoussac and the picturesque and savage Saguenay district. Already, directly or indirectly, the vacationists have brought a considerable amount of wealth to this region, and by degrees are bringing in civilisation, mainly through the increased transportation facilities. This is more particularly true of the North Shore.

Side by side with the seeker of beauty, and often more adventurous, comes the lover of sport. The hunter and fisher makes his camp in thousands of lonely and beautiful places, and he finds sport to his taste.

The back country is wild and rugged, and supplies game and fish: along the river there are water fowl. Both hinterlands have innumerable lakes and streams in which there is excellent fishing, and on whose wooded shores shy game appears. The little lakes are leased, and the richer fishing clubs have huge reserves. The sportsmen do not wait for railroad or graded road, but venture into the most outlying places. With them go the loyal and friendly habitants as guides and helpers. Thus once more the men of the countryside are drawn into the woods. For weeks, months at a time, they isolate themselves from even that slight cultural and civilising influence that the small home village may hold.

(*To be continued.*)

## THE FALKLAND ISLANDS DEPENDENCIES.[1]

THE dependencies of the Falkland Islands, with the exception of South Georgia, which has been British since Captain Cook took possession in 1775, were annexed in 1908. Their boundaries are comprehensively defined as the land between long. 20° and 40° W. south of lat. 50° S. and between long. 40° and 80° W. south of lat. 58° S. This embraces all Graham Land and adjacent islands, the South Shetlands, the South Orkneys, the Sandwich group, South Georgia, and even part of Coats Land in the south-east of the Weddell Sea. Interest in the island groups was the outcome of the revival in whaling about 1904. The chain of circumstances which led to this is worth recording. In 1892 the Dundee whalers *Balaena* and *Active*, on the former of which were Dr. W. S. Bruce and Mr. W. G. Burn Murdoch, went south to try the prospects of "right" whaling. Their departure was followed by that of Captain C. A. Larsen from Norway in the *Jason*. Although the right whaling, for which alone these ships were equipped, was not a success, great numbers of finners were reported. In 1901 Larsen's experience led to his being chosen by Dr. O. Nordenskjöld as captain of the *Antarctic* in the Swedish Antarctic expedition. The vessel was lost, and the crew were rescued by the Argentine ship *Uruguay*. These circumstances brought Larsen to Buenos Aires in an atmosphere of great *éclat*. There he succeeded in launching his whaling schemes, which had so far evoked no enthusiasm in Europe. Steam whaling began around the Falklands, South Georgia, and South Shetlands in 1905-6. A few years later it spread to South Orkney waters. Ever since then the industry has brought considerable revenue in licence fees and royalties to the Falklands, and has entailed small expenditure of Government funds in administration. In 1916 and 1917 the revenue derived from whaling was 20 to 25 per cent. of the total revenue of the colony.

[1] *Report of the Interdepartmental Committee on Research and Development in the Dependencies of the Falkland Islands, with Appendices, Maps, etc.*, pp. 164. His Majesty's Stationery Office, 1920 [Cmd. 657]. Price 2s. 6d. net.

During the year 1917 the Colonial Office, on the initiative of Mr. E. R. Darnley, suggested an inquiry into the whaling industry, particularly with regard to the possibility of excessive hunting causing its collapse, as occurred in the Greenland and Spitsbergen whaling. The scope of the inquiry widened, and the writer of these notes prepared a preliminary memorandum on the employment of a research vessel to study the resources of the dependencies. Eventually a committee was appointed to consider what steps, if any, should be taken for the preservation of the whaling industry and the development of other industries in the dependencies of the Falkland Islands. The committee was also charged to bear in mind purely scientific investigations required in these regions. The present volume, in the repellent guise of a blue book, is the report of that committee. In addition to a long summary of the inquiry and certain specific recommendations, it contains the memoranda and evidence submitted to the committee by the experts who were consulted. The help and advice of Dr. W. S. Bruce were obtained throughout the inquiry, and several valuable memoranda are contributed by him. Other contributors are Mr. T. E. Salvesen, Captain C. A. Larsen, Captain T. Sörlle, Dr. J. Hjort, Mr. R. C. Mossman, Dr. Rudmose Brown, and Sir Sidney Harmer, the last being a member of the committee. Mr. H. T. Allen, of the Colonial Office, compiled a great deal of useful information from published sources. The summary of the distribution of Antarctic seals, comprehensive as it is, might have been improved, especially as regards the South Orkneys, by more careful study of the *Scotia* reports. As regards the flora of South Georgia reference should have been made to Dr. C. Skottsberg's works, which have been consulted in other respects, in place of the list of plants collected by H.M.S. *Sappho*. The short and incomplete bibliography is the least satisfactory part of the report. It would have been wise to entrust its compilation to an authority. These, however, are minor criticisms, and, although joint authorship naturally entails a good deal of overlapping and some repetition, the excellent summary and complete index mitigate these drawbacks.

The evidence as to diminution in the number of whales is not altogether conclusive except in the case of humpbacks. Of the three principal species hunted, humpback, fin, and blue whales, the humpback constituted over 96 per cent. of the catch in 1910-11 and only 9 per cent. in 1916-17. At the same time it must be borne in mind that the humpback is more timid than other species, and so more likely to be frightened away from much frequented hunting grounds. However, there can be no reasonable doubt that the deadly efficiency of the modern whaling gun will eventually lead to a depletion in the number of whales. Captain Larsen and Dr. Hjort suggest that Antarctic waters are a vast reservoir of whales, and that losses in the dependencies will be naturally replaced from other seas. Even if this theory is true the day of extermination will merely be deferred. Many of the whalers seem to be in favour of a close period during the southern winter. Meanwhile suggestions are made which if adopted might restrict the slaughter of whales within limits. Much emphasis is rightly laid on the

necessity of researches into the food, breeding habits, and migration of whales. Such researches, together with careful statistics of locality, size, and sex, seem to lie at the root of the whole problem, but they would take time and patience and demand naturalists of a hardy practical type.

The investigation of the sealing in the South Shetlands and the possibilities of its reintroduction has taken Dr. Bruce deep into historical researches, and he has succeeded in unearthing a great deal of interesting information, some of which, it may be noted, is published in the last edition of the Admiralty Sailing Directions for these waters. The committee recommend that attempts should be made to re-establish the fur-seal, first at South Georgia, and then, if the experiment promises success, at the South Shetlands. Most wisely they advise the prohibition of pelagic sealing. As long as that continues any protection of seal rookeries would be impossible. Not only does the practice nullify the regulation of the industry and lead to indiscriminate slaughter of animals of both sexes and all ages, but it furnishes a plausible explanation of any cargo of skins which may as likely as not have been raided from a preserved rookery. Actual instances of this at the Falklands are not unknown. As regards the sea elephant, opinion in the dependencies appears to refute the fear that the numbers are diminishing, especially since a restricted number of hunting licences has been issued. But this seal is an easy prey when it hauls out of the sea and lies on the beaches as is its wont, and regulations can easily be transgressed despite the watchful eye of the magistrates. Care must be exercised lest the sea elephant shares the fate of the fur-seal.

Among the points of interest brought out in Dr. Bruce's researches on the history of the fur-sealing is the fact that the mainland of the Antarctic continent was first sighted and named Trinity Land by Edward Bransfield, R.N., in January 1820, a year before the generally accepted discovery by the American Captain N. B. Palmer. It is also of interest to learn that the chief officer and ten men of the *Lord Melville* of London passed the winter of 1821 in a house at Esther Harbour, King George Island, South Shetlands. This was clearly the first wintering in Antarctic regions. The first record of sealing in these islands on a commercial scale seems to have been in 1820, when the Argentine sloop *San Juan Nepomuceno* landed 14,600 skins at Buenos Aires in February, and the American brig *Hersilia* arrived a week later with another large cargo. In the following year many British and American vessels secured such large numbers of skins that the fur-seal was virtually exterminated. The whalers of recent years report no sign of fur-seals at the South Shetlands, and the last one on record seems to have been found at Nelson Island in 1902 by the Swedish Antarctic expedition, unless it is true that Canadian sealers secured cargoes at the islands about 1902 and 1904. At the South Orkneys it was last recorded by Weddell in 1823. It may possibly survive in small numbers at the South Sandwich group, where in recent years American sealers asserted they could get a fair cargo. Captain Larsen gives several instances of fur-seals at South Georgia, including that of an American (?Canadian)

schooner that received 170 in 1906. These instances seem to dispose of the statement in another part of the report that, with the exception of isolated records in 1910 and 1915, the fur-seal has been extinct in South Georgia since 1874.

Since Weddell seals are scarce at South Georgia, although numerous at the South Orkneys and Shetlands, it is suggested that their capture should be prohibited in that island. On the other hand, the committee view with equanimity any diminution in the number of sea-leopards because they prey on penguins as well as fish. But "ferocious pest" is a somewhat extravagant term to apply to this seal.

Indications are not wanting that food fisheries could be established in these waters, particularly in the vicinity of the Falkland Islands, and in this respect a survey of the sea is recommended. The Argentine, Uruguay, and Brazil import fish to a great extent from Norway and Spain, and Brazil draws supplies also from Newfoundland and Canada. To compete in these markets would entail the preservation of fish either by drying or canning. And it does not follow that comparative proximity to South American markets would put Falkland fisheries at an advantage, owing to distance from coal and fishing supplies, as well as remoteness from established trade routes.

We are glad to note that penguins are now protected by the law: since 1914 it has been illegal to kill the birds or collect the eggs without a licence. Yet one cannot fancy an exploring expedition in the British waters of the Weddell Sea being debarred from the best food available by respect for this regulation!

Reindeer were first imported from Norway to South Georgia in 1911. The original three bucks and seven does had increased by 1917 to at least forty-five head. Two bucks and five does imported in 1912 had given rise by 1917 to a herd of seventeen head. Feeding during winter is the chief difficulty to be overcome, since the limited natural pasture is then much restricted. Sheep have been tried, but do not seem to thrive unless carefully sheltered during the winter. It is suggested that experiments in acclimatisation should be made with the Alaskan sheep or domestic goats. Either of these animals, however, might destroy the scanty vegetation that now exists. Horses seem to stand the conditions well; a certain number introduced in 1905 are said to have run wild round Cumberland Bay. But as horses cannot cross the glaciers and their use is very limited on rugged surfaces, there is little inducement to import them. Arctic foxes and the musk rat would very likely flourish if introduced, but they would certainly have a disastrous effect on the penguins. Unless the penguins are to be sacrificed, there are no prospects of breeding fur-bearing animals on South Georgia or any other of the dependencies. One introduced animal doing harm is the brown rat, but there appears to be no hope of exterminating it. From what is known of the geology of the islands, there seems to be little chance of any minerals of economic value being found.

In hydrography and meteorology the committee accept the view that a great deal requires to be done, if only in the interests of the whalers.

The South Orkneys were partially surveyed by the *Scotia*; the South Sandwich are almost unknown. A new but provisional chart of the South Shetlands has been prepared by Dr. W. S. Bruce, from a mass of disjointed and somewhat conflicting material; parts of Graham Land were fairly well charted by the efforts of the *Belgica* and Dr. J. Charcot's expeditions, but the west coast is little known; and finally the chart of South Georgia is still very incomplete. The discovery and charting of good harbours on these coasts, and the location of rocks, are most important. That dangerous unsuspected rocks occur far from land is shown by the discovery of Undine Rock in lat. 58° 31′ S., long. 41° 58′ W., a few years ago. Observations on tidal streams and ice movements are much required. The relation of hydrographic investigations generally to fisheries and whaling, and a discussion of the extent to which work of this nature is necessary, are treated in two memoranda by Dr. H. G. Fowler and Mr. J. O. Borley respectively. Mr. R. C. Mossman, in emphasising the need of more meteorological research, touches on the seasonal correlation in atmospheric phenomena which his researches have suggested, such as the seesaw of pressure between the South Pacific anticyclone and the low-pressure area in the Bellingshausen Sea. This appears to be a factor in determining the weather over Chile, and there appears to be a strong inverse relation between the winter rainfall of Chile in middle latitudes and the height of the Nile flood. If such relationships can be definitely established, they are worth the maintenance of a few Antarctic meteorological stations. It is only by a series of observations—Sir Napier Shaw suggests 35 years—that the theory can be established or disproved. If the correlation holds, it means, for instance, that the monsoonal activity in the Indian Ocean could be predicted from observations in the Antarctic.

The report concludes with the recommendation that a research expedition should be sent to the waters of the dependencies to investigate various problems. It is suggested that two vessels should be employed, one of about 700 tons net, and the other, protected for work among ice, of about 300 tons net. Both vessels should be three-masted topsail schooners, with auxiliary steam-power and furnished with wireless installation. Full details are given of the equipment necessary and the constitution of the scientific staff. It is satisfactory to note, as regards the proposed remuneration of the scientific staff, the committee "are impressed by the fact that the salaries offered in such cases before the war were in general altogether incommensurate with the attainments of the persons engaged and the value of the services rendered." The scope of the investigation would entail several years' work. Since its foundation in 1903 by Dr. W. S. Bruce and Mr. R. C. Mossman, the meteorological observatory at the South Orkneys has been maintained by the Argentine Government, which has also been responsible for the upkeep of the station at South Georgia since 1907. At Wandel Island in lat. 65° S., on the west side of Graham Land, a station projected by the Argentine Government never materialised. Mr. Mossman advocates the importance of this station, as well as others on the north of the South Shetlands and at Southern Thule or some other island of the South

Sandwich group. He would also like to see a station on Tristan da Cunha or Gough Island. At Cape Pembroke lighthouse, Falkland Islands, observations have been taken for many years.

In these days of financial stress, when economy in all enterprises that lack popular appeal is the vote-catching cry, it is doubtful if the proposed investigations will be undertaken. At the same time, it should be noted that the committee point out that the vessels and equipment could be provided by the Admiralty and the pay of the naval officers and crew employed could be borne by naval funds without extra expense to the nation, while the further cost might justifiably be met by increasing the fees payable in respect of whaling leases and licences and the low rate of export duty on whale oil.

The whole volume is a most valuable piece of constructive work in the wider aspects of economic geography, and shows how many scientific problems are interwoven in putting development on a sound foundation. It is an example of what might well be done for other parts of the Empire at little greater cost than that of printing the report. In this way the Empire might become conscious of its potentialities, and the path might be shown to sane development in place of ruthless exploitation.

R. N. Rudmose Brown.

**Errata.**—In Colonel Yate's paper on "Baku and the Caspian," in vol. xxxvi., p. 254, the following misprints occur: on p. 255, four lines from bottom, the word "sherbet" should be "sterlet"; on p. 257, six lines from bottom, the word "seaport" should be "sea-front"; on p. 262, eight lines from bottom, the word "national" should be "natural."

## GEOGRAPHICAL NOTES.

### Asia.

**The Volcanoes of Java.** (*With Illustration*).—By the courtesy of Mr. N. A. Mackie we have been furnished with a series of letters and notes describing a visit to Garoet, Java, made last autumn by his two sons, Messrs. Alan and Vivian Mackie, of Kuala Lumpur. Garoet, a health resort, is placed in the midst of the volcanic area, and we reproduce one of the photographs sent by the travellers, showing the crater of the volcano Papandajan.

Garoet, which is connected by railway with Batavia, is situated in a fertile plain, at a height of about 2000 feet above sea-level, and has a population of about 15,000, Malays and Dutch. Although the elevation is not great, the surrounding mountains, of which the extinct volcano of Tjikoeraj rises to over 9000 feet, make it cool and pleasant. As compared with the Malay States, the travellers were much struck with the extensive cultivation and with the amount of European comfort available. "Above all, this is a *finished* country, in the plains as well as the hills. Fields just as in England, and not a yard of land uncultivated; fast trains, with large and busy stations; and generally the air of a place

where people come to live on European lines, rather than just work for a few years in a plantation or mine as in our part. The total absence of jungle and the intensive cultivation of rice struck us very forcibly. The hills are terraced and partitioned off with mud ridges right to the top, and by a very good irrigation system these partitions are all kept full of water."

An interesting account is given of an ascent of Mt. Papandajan. The crater is not at the top of the mountain, which rises to over 8000 feet, but some 1500 feet below, and it has been only moderately active since the great eruption of 1772. The crater proved to be about half a mile each way, and was absolutely devoid of vegetation, the floor being covered with fumaroles from which steam and sulphurous fumes emerged. At certain spots boiling mud was visible.

"The whole place was rather uncanny. It gave the impression that

The Crater of Mount Papandajan.

just down below there was a scalding mass of boiling water and steam with unlimited power. We got the idea that it might burst up in a new place at any moment, and that what we were standing on was just a very thin crust. As a matter of fact the Dutchman who was with us put his foot through when he was walking—and started a new volcano. He fell forward on his face and got his foot out, but it was rather burnt."

A visit was also made to Kawah Kamodjan, where the crater was clothed with vegetation instead of being bare, and showed several boiling lakes, also holes filled with boiling mud, and cracks from which steam was blowing out. In one of these cracks a bamboo whistle had been placed, and owing to the pressure of the steam it blew incessantly. "We amused ourselves by pushing long sticks into the ground and trying to start new blow-holes." Mr. Alan Mackie made another excursion alone with a guide to a third volcano, during which he lost the guide and had considerable difficulty in finding his way back to his hotel.

**Expedition to Mt. Everest.**—The Royal Geographical Society and the Alpine Club have had for some time under consideration an expedition to Mount Everest. On 10th January Sir Francis Younghusband, President of the Society, was able to announce that the political difficulties which had stood in the way had been removed, and that the Tibetan Government had given permission for a party to explore the mountain.

The expedition is being organised by a joint committee of the Royal Geographical Society and the Alpine Club, and Col. C. Howard Bury has been appointed Chief of the Expedition, while Mr. Harold Raeburn is leading a reconnaissance to the mountain this year. Mr. Raeburn's party is to seek to acquire the necessary geographical knowledge, including both the topography of the region and the climatological conditions, and the arrangement is that he should endeavour to enter Tibet as soon as the passes are open, about the end of May. The climbing party, under Col. Howard Bury, expect to utilise the information so acquired next year.

As to the actual route by which the mountain is to be approached, it may be noted that an article, with a sketch-map and some fine illustrations, by Brig.-General the Hon. C. G. Bruce, appears in the January number of the *Journal*, and another by Lt.-Col. Howard Bury in the February number. The two writers differ in some minor details in regard to the most suitable route, but both are agreed that the mountain can be most easily approached from the northern side, and that it is this side that appears most feasible for the actual ascent.

Yaks will probably be used as the chief means of transport, and as the snow-line on the north side of the Himalayas is often at 20,000 feet or over, it should be possible to take the animals up at least to this height. Owing to the lesser denudation, the slopes also on the north side are far less steep than on the south, and it is possible that in the case of Mount Everest these may, as is known to be the case with some other peaks, be comparatively gentle snow-slopes.

The route proposed by Colonel Bury is from Darjeeling, over the Jelep La to Phari, and then *via* Kampa Dzong and Tingri Dzong. He considers that the Jelep La is to be preferred to the more direct route by Gangtok and the Teesta valley, owing to the heavy rainfall, the abundance of leeches, and the prevalence of malaria in that valley. Once over the Jelep La and into the Chumbi valley, the climate is excellent, and, as this is a regular trade route, supplies will be obtainable locally.

The Government of India, and more especially the Surveyor-General, have promised cordial co-operation, and the prospects for what Sir Francis Younghusband calls "a great adventure" seem bright.

## Africa.

**The Uganda Protectorate.**—Last year a second edition of *The Handbook of Uganda* was published by the Government of the Protectorate, and is of much interest in that it includes a large amount of

material dealing with the country during the War period. The book, which has been revised and largely re-written, is by Mr. H. R. Wallis, C.M.G., C.B.E., late Chief Secretary to the Government, who has also, for various terms, performed the duties of Acting Governor; it contains a number of striking illustrations and a clear map. From the mass of material included we can only pick out a few salient facts.

It is pointed out that the cotton industry is now by far the most important of those of the Protectorate, and the cotton exported exceeds in value the total of all other exports put together. The industry is, however, very recent. The year 1904-5 is given as the beginning of production for export, and in that year the value of the exports was £236; in the year 1913-14 the figure had risen to over £300,000. In the period 1918-19 the value, for an export *smaller* by about 1700 cwts. than that of 1913-14, was about £965,000—a curious instance of the changes in value due to the War. The War, indeed, partly owing to transport difficulties, and partly to the absorption in war-work of many members of the community, had an unfavourable effect on production; but it is expected that a rapid increase will now take place. Cotton-growing is almost entirely a native industry, and thousands of small cultivators are engaged in it throughout the country. Native instructors are employed to teach the peasants how to cultivate the plants and harvest the crop, and methods are improving, though much still remains to be done.

A large number of estates have been recently acquired by European planters, but these estates produce chiefly coffee, Para rubber, and cacao. Coffee production has been expanding rapidly, but it is believed that extension has about reached its limit, for the European planters chiefly used the tree as a catch-crop among Para rubber plants, and the latter are now coming into bearing and the coffee is being cut out. Cacao is being planted on a fairly extensive scale, but there is little evidence yet that the plantations will be commercially successful.

The various groups of natives are discussed in some detail, a fairly lengthy chapter on Anthropology being included. In the chapter dealing with the War, however, there is an interesting note on the native food-supply, which seems to have a wider bearing than the purely military one. It is pointed out that the majority of the natives live chiefly on bananas and sweet potatoes, with beans to give the necessary nitrogen. In few cases does grain form more than a small portion of the diet. It was one of the difficulties in using native troops during military operations that the ordinary food could not be supplied, and it was necessary to give flour made of maize and millet, with a small ration of meat. This diet led to a high percentage of sickness and deaths from intestinal disease, and it is stated that Uganda natives cannot be successfully employed away from their own country, unless carefully dieted and accustomed to rice or flour for a considerable period beforehand. "Once they become accustomed to strange foods they render excellent service, but the proportion which can be so used is small." One wishes that fuller details had been given, for it is sometimes stated, on the other hand, that African natives accustomed to a

diet of bananas are unable to do continuous hard work, on account of the insufficient food-value and the excess of carbohydrates. If it is certain that a more concentrated diet—apart from other conditions, such as unusual fatigue—produces sickness, then it would appear that there is here a limiting factor in the distribution of the tropical African peoples. For the banana demands a particular climate, combining heat and moisture, which is of limited distribution in the continent.

The points noted are but a few of those presented in the *Handbook*, but will serve to show that it is of much value to the geographer.

**Expedition to Angola.**—M. Jacques de Rohan-Chabot spent the period from March 1912 to January 1914 in the south of Angola, and some preliminary notes on the work of his party appear in *La Géographie* for January of the present year, accompanied by a map. The notes indicate, what is indeed to be expected, that there is considerable general resemblance to South-West Africa, with the progressive differences, as one passes northwards, to be anticipated from the diminishing latitude. Thus the coastal plain is exceedingly dry, and south of Mossamedes the curious Welwitschia occurs, forming the only plant present. Farther inland trees and shrubs appear, and on the margin of the interior plateau there is a dense forest belt. Trees again diminish eastward till the rocks of the plateau give place to the vast sandy plain which stretches to the Zambesi.

Communication with the interior is difficult, and is carried on either by porters or by ox-carts, resembling those used by the Boers. These are drawn by eighty oxen, and carry a weight of two tons. There are no prepared roads, the tracks followed being simply cleared areas, often strewn with boulders, or, in the sandy stretches, deeply furrowed by ruts. The caravans carry provisions for the Portuguese posts, and also for the small trading houses, which purchase rubber from the natives. Since the rivers have a general north-to-south direction, they are of but little use as a means of penetration, and, further, they are only navigable for short stretches, and have very sinuous courses. The natives use canoes extensively, but they only travel short distances, and the chief purpose of the canoes is to enable them to cross the larger streams. At the present time attempts are being made to construct roads suitable for motor traffic.

Some interesting notes are given in regard to the natives. The population is scanty, and the natives, who are largely pastoral, are migratory in their habits. The villages are small, rarely including more than thirty families, and under stress of famine—a frequent occurrence—it is not unusual for the whole population of a village to migrate. In the areas most difficult of access Bushmen occur, and remain at a very low cultural level. They are very scantily clad, and live in the woods in small parties, consisting of a man with one or two wives and their children. They build no habitations, spending the night either in deserted huts or in a rough shelter made of branches. They have no industries of any kind, but exchange surplus meat or honey with the other natives for pottery or iron goods. Their weapons and utensils

are very limited; a bow, some arrows with iron points, a small knife, and a few calabashes for water, carried by the women, include almost all their possessions. Hunting forms their main resource, animals being killed by means of the bow and arrows, and the flesh grilled. To their flesh diet, however, they add honey and such wild fruits as they find in the forest. M. Rohan-Chabot notes, as a peculiar feature, that steatopygy, often regarded as a racial character, is absent in these Bushmen of Angola. Fuller anthropological details are promised later.

### America.

**New American Journal.**—We have to record the appearance of the first number of *The Latin-American Times*, a new monthly journal which aims at stimulating trade and improving relations between Britain and the Latin-American republics. The first issue includes a number of notes and articles of interest to the geographer, including one on the possibility of producing cotton for export on a large scale in the various republics. It is stated that during the War much land was placed under cotton cultivation, the best Egyptian seed being used.

### General.

**The Definition of Geography.**—Under date of January 17, 1921, Mr. L. C. W. Bonacina sends us the following communication:—"In consequence of the age of the science the definition of geography has gone through several stages. At a time quite recent geography was in danger of having to divide up its territory among the many newer, more specialised, Earth-sciences like geology or meteorology. Fortunately, however, geography was found capable of justifying its independent existence; and, in this country at any rate, perhaps the two most effective exponents of the special function of the science have been Dr. H. R. Mill and the late Professor A. H. Herbertson (see, for instance, *Geographical Journal*, October 1904). These writers based their conception of geography on knowledge of the *distribution* of phenomena on the surface of the Earth, Herbertson developing an elaborate philosophy of the subject on these lines. But there is still need of a succinct verbal definition of geography which could pass into general use, and a request for such was, indeed, made at a recent meeting of the British Association. The present writer offers for the consideration of geographers the following definition:—*Geography investigates the regional relationships of the various interacting phenomena of the lithosphere, hydrosphere, atmosphere, and biosphere.*

"This definition is in full accord with Herbertson and Mill's philosophy, and involves two fundamental conceptions: *region* and *physical environment* within it. The regional idea underlying geography is quite essential. One hears much nowadays of 'regional geography,' but this phrase, of course, refers to the modern scientific method of teaching the subject. For a subject to be geographical it is essential that interest centres upon *region*, but region not as a mere space concept but in

relation to the interplay of land, water, air, and life. Geography is a general Earth-science, and so, of course, is geophysics. In fact, physical geography, which constitutes the basis of all geography, largely discusses the same natural phenomena as geophysics, and should be regarded philosophically as the regional aspect of geophysics. If one now contemplates the particular sciences of the lithosphere, the hydrosphere, and the atmosphere, namely geology, hydrology, and meteorology, it is evident that these three sciences have each both a geophysical and a geographical aspect. Climatology, indeed, as the present writer has demonstrated in a long paper not yet published, is nothing but meteorology in its regional, that is, geographical bearings.

"A question that may arise is whether geography is properly a study in two or in three dimensions. Although one cannot confine the conception of geography rigidly to two dimensions, nevertheless by the very function of geography as the common meeting-ground of the studies of geological, hydrological, meteorological, and biological distributions, it is essentially an *area* or *surface* study of two dimensions rather than a *volume* study of three dimensions such as geology, oceanography, and meteorology. Finally, it might be noted that in climatology, which takes account of seasonal periodicities, we are introduced, adapting to geographical co-ordinates the modern metaphysical conception of a single space-time continuum, to a study in four dimensions, viz. North-South, East-West, Up-Down, Summer-Winter, specified respectively by latitude, longitude, height, and date."

## Personal.

**David Livingstone Medal for Dr. W. S. Bruce.**—The David Livingstone Centenary Medal of the Hispanic Society of America was awarded in 1920 to Dr. W. S. Bruce. This gold medal was founded in 1913 in celebration of the centenary of the birth of David Livingstone, and is awarded by the American Geographical Society of New York "for scientific achievement in the field of geography in the Southern Hemisphere." The American Ambassador, in presenting the medal at a meeting of the Royal Geographical Society on December 20, 1920, gave a summary of Dr. Bruce's achievements in Antarctic exploration. Previous recipients of the medal have been Sir Douglas Mawson, Colonel Theodore Roosevelt, and Colonel Candido Rondon, with whom Colonel Roosevelt was associated in his explorations in the Amazon basin.

**The Wollaston Medal.**—This medal, the highest honour in the gift of the Geological Society of London, was presented at the Anniversary Meeting of that Society in February last to Drs. Peach and Horne, in recognition of their geological work in Scotland. In making the presentation Mr. Oldham, the President, dwelt upon the valuable work done by the two distinguished geologists in the Highlands of Scotland, and also upon Dr. Horne's work at the Geological Survey, and Dr. Peach's researches on the Crustacea of the Carboniferous rocks of Scotland.

## NEW BOOKS.

### EUROPE.

*The Influence of Man on Animal Life in Scotland: A Study in Faunal Evolution.* By James Ritchie, M.A., D.Sc., F.R.S.E. Cambridge: At the University Press, 1920. *Price* 28*s. net.*

The Assistant-Keeper in the Natural History Department of the Royal Scottish Museum has made a valuable addition to the list of volumes dealing with the Natural History and Biogeography of Scotland. He has laid under contribution the work of numerous writers and specialists on antiquarian as well as geological and palæogeographical subjects to produce a volume that is encyclopædic in its content, scholarly in its exactness, and most interesting in its method and style.

Working from the base of Scotland as neolithic man found it, Dr. Ritchie deals successively with domestic and wild animals, tracing historically their introduction into the land and the modifications in their functions no less than in their habitats that have acompanied human interference with their manner of life, their environment, and their distribution. Particularly informative and interesting is the section that treats of the disappearance of Scottish forests and the effect on the animals that formerly lived in them. Other significant sections deal with the Great Auk, the various arrivals of rats, and the economic result of encouraging gulls at West Linton. Towards the end of the book an account of the former prevalence of ague in Scotland serves to show how man may unconsciously ameliorate his condition by improving his husbandry.

These hints of the vast store of excellent material provided by Dr. Ritchie for the reader's instruction and entertainment will attract both the specialist and the general reader to a most masterly treatise by a scientist to whom our members scarcely require an introduction. The volume is fully illustrated, many of the sketches and photographs being the work of the author himself.

*Spanish Influences in Scottish History.* By John R. Elder, D.Litt. Glasgow: Maclehose, Jackson and Co., 1920. *Price* 12*s.* 6*d. net.*

The object of the present work is to show the intrigues which, after the Reformation, Spain conducted in Scotland in order to defeat Protestantism and consequently enhance Spanish power. Professor Elder states that in 1560 (the date of the definite establishment of the Scottish Reformation) "the Scottish Catholics outnumbered the Protestants by three to one and were headed by three-fourths of the nobility of Scotland." It is difficult to see how the Scottish Reformation could have taken place if these figures are correct. Professor Hume Brown says in his *History of Scotland* that since the death of Cardinal Beaton in 1546 the new religious opinions had made steady progress among the Scottish people. The testimony of official records puts the fact beyond question. In June 1546, within a fortnight after Beaton's death, the Privy Council found it necessary to pass an Act "against invading, destroying, and withholding of Abbeys." In March 1547 a Roman Catholic Council besought the Regent Arran to defend "the true religion," as Scotland was "now infected with the pestilentious heresies of Luther's sect and followers." When Mary Stuart landed in Edinburgh from France in 1561, she found John Knox and his Reformers in possession of her capital. According to a map given both in Professor Hume Brown's *History* and in Professor Sanford Terry's recently published *History of Scotland*, the Pro-

testants greatly outnumbered the Roman Catholics in Scotland about 1590, only thirty years after the Scottish Reformation.

Philip of Spain considered Mary Stuart the most important pawn in the two-fold game he was playing for the success of the Counter-Reformation and the establishment of Spanish hegemony in Western Europe. On the other hand, Elizabeth of England sought to raise a bulwark against the encroachment of Spanish influence by a more vigorous support of Protestantism both in England and Scotland. The murder of Darnley and downfall of Mary wrecked Philip's schemes, but when she fled to England her Roman Catholic sympathisers considered her "a Catholic martyr, the rightful heiress to the throne of England held in bondage by a jealous rival." The author cites letters written by Mary in captivity urging Philip to send troops to Scotland in preparation for an attack on England, and expressing her wish that her son James should go to Spain to be educated as a Roman Catholic and ensure a Catholic Scotland. There is much that is new and historically valuable in this interesting volume in which its author unfolds, as has probably never been done so thoroughly before, the efforts made by Spain to make Scotland an appanage of her then great empire.

*The Provinces of England.* By C. B. Fawcett, B.Litt., Oxford; M.Sc., London. London: Williams and Norgate, 1919. *Price 6s. 6d. net.*

This book is a revised and more complete statement of the author's suggestive paper in the *Geographical Journal* for February 1917, which was summarised in the *Scottish Geographical Magazine*, vol. xxxiii., p. 175. Mr. Fawcett first discusses the existing local government divisions with their multiplicity of boundaries, and, taking into account the distribution of population and the *foci* on which they naturally converge, outlines with much skill a division of England into twelve provinces each with a large central town as capital. His proposed provinces are North England (with Newcastle-on-Tyne as capital); Lancashire (Manchester); Yorkshire (Leeds); Peakdon (Sheffield); Severn (Birmingham); Trent (Nottingham); Devon (Plymouth); Wessex (Southampton); Bristol (Bristol); East Anglia (Norwich); London (London); Central England (Oxford). Scotland (Edinburgh), Ireland (Dublin), and Wales (Cardiff) would each form a province under the scheme, but, as the title suggests, these are not discussed. Each province should serve as many administrative purposes as possible. Diagrams and tables show the area, total population, and density of population of the separate provinces.

Mr. Fawcett pioneers an extremely useful reform, and in view of any possible institution of a federal system of government in the United Kingdom, has laid before us a statesmanlike proposal, carefully argued, clearly stated, and amply illustrated. The volume is specially noteworthy for teachers, who will find that the study of the proposed provinces sheds new light on many familiar problems.

*Nooks and Corners of Sussex and Hampshire.* By Douglas Goldring. London: Eveleigh Nash, 1920. *Price 5s. net.*

Still another book about Sussex! Mr. Goldring's little volume covers much of the ground described in Mr. Holmes' *Seaward Sussex*, noticed in the October number of this Magazine, but extends farther west through Hampshire to the New Forest and the Avon Valley. It is, however, not written on the lines of the ordinary guide-book, and appeals more to those well acquainted with the district than to the casual tourist. In a series of desultory, disconnected paragraphs, the author gives us many interesting fragments of half-forgotten local history, and discourses pleasantly on folk-lore, village worthies, old-world tales, legendary and

otherwise, of smugglers, ogres, dragons and dragon-slayers, with extracts from ancient parish registers and quotations from forgotten poets.

In the section dealing with West Hampshire there are longer and more detailed descriptions of Christchurch and its beautiful Priory, set on the neck of land between the Avon and Stour,—"perhaps the finest church in England beneath the rank of a cathedral"; of the New Forest and its beauty spots; and the valley of the far-famed Test, "the (wealthy) angler's paradise."

*Pole and Czech in Silesia.* By JAMES A. ROY, M.A. London: John Lane, 1921. *Price 6s. net.*

The title of this book is scarcely descriptive of its contents, for it gives rise to an expectation which is not wholly realised. Mr. Roy is not very greatly interested in the political problems either of Austrian Silesia as a whole, or of the republic of Czecho-Slovakia on the one hand and of the new Poland on the other, and only discusses these in a very summary fashion. In the social conditions prevailing at the time of his visit, which apparently took place in the early part of 1920, he is, on the other hand, profoundly interested, and the circumstances of that visit gave him ample opportunity for first-hand observation. He was appointed a member of the Inter-Allied Commission, whose purpose was to strive to keep the peace between the two active claimants to Lower Silesian territory, and his official status brought him into contact with a number of prominent persons. His book, with not a few diversions and various reminiscences of War incidents, consists therefore of sketches of men and manners in a part of Central Europe where conditions are, and are likely to remain for some time, profoundly disturbed. As an impressionist study it is vivid and picturesque in the extreme, and is undoubtedly valuable in supplementing official reports and partisan statements.

One cannot indeed accuse the author of an excess of sympathy for any individual representative of the varied peoples of Central and Eastern Europe, for he seems somewhat hopeless in regard to the destiny of all. His final summary is depressing enough:—"Pole and Ruthenian at daggers drawn over East Galicia; . . . Czech and Pole at loggerheads over the Silesian question; Czech and Slovak snarling at one another; . . . Serb and Italian quarrelling over the Dalmatian seaboard; . . . Catholic Croat and Orthodox Serb cutting one another's throats to the greater glory of God; Greek and Bulgarian glowering at each other hatefully, hand on knife; . . . everywhere hate and malice and wrath and uncharitableness and evil speaking towards one's fellow-men." When, however, our author ascribes this condition of affairs to the break-up of Austria, and the resulting spreading "of the local cancer," it seems well to recall the fact that most of these complex quarrels antedate the war, some of them by long periods of time, and that the Peace Treaties, whatever their defects in detail, do at least for the first time give the parties concerned a chance of finding solutions for themselves. But, as already indicated, it is rather for its lighter touches that the book will be read.

*Iona. The History of the Island.* By F. M. M'NEILL, M.A. Glasgow: Blackie and Son, 1920. *Price 3s. 6d. net.*

This elegant and very useful volume will be much appreciated by all visitors to what Dr. Johnson (himself a visitor in 1773) termed "that illustrious isle which was once the luminary of the Caledonian regions." Its original name (as invariably used by Adamnan at the end of the seventh century) was *Ioua*. In modern Gaelic it is called *I* (pronounced *ee*). Here in 563 Columba landed and

here in 597 he died, the same year that St. Augustine landed in Kent. The volume before us is enriched with fine photographs of the Nunnery, St. Mary's Cathedral, Sligneach, Martyr's Bay, and Staffa. It also contains two beautiful sketch-maps, one of Scotland at the time of Columba, and another of Iona itself. The topography, antiquities, and geology of Iona are fully treated, while, as to its meteorology, we are informed that "the climate in winter is mild, and snow is rare, but the island is subject to fierce gales which sometimes cut off all communication for days at a stretch."

## ASIA.

*In Unknown China: a Record of the Observations, Adventures, etc., of a Pioneer among the Wild and Unknown Nosu Tribe of Western China.* By S. Pollard. With Maps and Illustrations. London: Seeley, Service and Co., Ltd. *Price* 25*s. net.*

It is generally supposed that there is little of the interior of China which has not already been explored by missionaries or travellers, while the literature of the subject, dating from the days of the early Catholic missions in the fifteen hundreds down to the present time, is enormous. But that there are still fresh fields to explore is evidenced by this book of the Rev. Mr. Pollard's, a member of the Methodist Mission, who claims to have been the first European to penetrate into that corner of south-western Szechuan which lies to the north of the upper waters of the river Yangtsze, and which he has christened *Nosuland*, after the tribe of aborigines who inhabit the territory. There they dwell in their mountain strongholds, chieftains and people, practically independent of Chinese official control, though nominally subject to it. They are separated only by the narrow width of the turbulent river from the fertile province of Yunnan, and they make things very lively at times for the more peaceable Chinese who dwell on this part of the marches. To the latter, independent Nosuland is "the great bogey land," a region of wild hillmen whom popular legend has credited with weird powers, while the fortified towers of refuge which stud the border on the Chinese side bear witness to the awe with which their raids inspire their neighbours.

Apart from the route by French Indo-China and through Yunnan, and also the way by the Burmese frontier, the road to Szechuan leads by the mighty channel of the Yangtsze. The first 600 miles, to Hankow, are on the familiar track of ocean steamers. Beyond Hankow, Ichang is reached by light-draught river steamers, and at Ichang is the gate of the real Yangtsze, where the steamers are exchanged for native boats propelled by oar and sail, or dragged up dangerous rapids by trackers. Mr. Pollard has the gift of picturesque writing, and his account of the fight inch by inch up the river for a month or more, exciting as it is in reality, loses nothing in the telling, while his experiences in getting over into Nosuland in the face of violent opposition from local Chinese officials, who plotted for his death rather than let him go, show that he was not easily deterred by danger. His reception by the hillmen was, on the whole, very friendly, although he did get into some tight corners. How he fared in Nosuland, what he saw of the life of the chiefs and people, their Gargantuan feasts, in which he shared, and other matters, are set forth in the very readable volume before us. There are many passages which lend themselves to quotation, but it would not be fair to the author to pick out the plums.

Mr. Pollard furnishes some notes on the aboriginal tribes inhabitating western China which will be of value to the student of ethnology. He divides these tribes into Nosu, Miao, and Shan. "The Shan dwell in the western part of Yunnan

and spread into Burma. The Nosu are all over Yunnan, in the west of Szechuan and in a small part of Kweichow, in some parts of Yunnan and in a few places of Szechuan." The hillmen of the tribes differ widely from the Chinese in their dress, customs, and language. The languages of the Nosu and the Miao agree in so far that all their principal words have vowel endings, and in that respect they resemble Japanese words, which, in Mr. Pollard's opinion, lends colour to the suggestion that the Japanese are descended from the Miao The Nosu have their own written language, ideographic in form, but with entirely different characters from the Chinese.

The Nosu are a fighting race, possessed of many of the primitive virtues, and unspoiled by contact with the more sophisticated Chinese, who affect to despise them, calling them "Lolo" and "Mantsz" (wild men), and using the radical for dog in the characters for their name. The Nosu women are frank and fearless in their bearing in the presence of the male sex, and they abhor the Chinese practice of foot-binding.

Mr. Pollard appears to have owed his safety when in difficulties with the hillmen to the gift of a saving sense of humour and a capacity for hearty laughter. Altogether his is a refreshing book of travel which we think will find many readers. J. D. M.

*Marvellous Mesopotamia: The World's Wonderland.* By Joseph T. Parfit, M.A. London: S. W. Partridge and Co., 1920. *Price* 6*s.*

It has justly been said that the War is not over, nor will it be until the Eastern question is settled. In the programme of world pacification also the question of economic development must in future be a significant one. In the light of these classic maxims, there is no doubt that Mesopotamian affairs are capable of forming a starting point of a reconstruction scheme in the East. In his *Marvellous Mesopotamia*, Canon Parfit reminds us of the enormous natural potentialities of Irak, and from this standpoint the book is decidedly useful; but when the author lets himself go into side-issues of sentimental politics his work falls down from the pedestal to which it is raised by those chapters which are based on facts. But we are informed that the book is really a "*written up*" form of a series of lectures delivered by Canon Parfit on Mesopotamia. It is written in an easy, almost a racy style.

*The Near Eastern Question and its Solution.* By Morris Jastrow, Jun. With a Map of the Near East. Philadelphia: J. B. Lippincott Company, 1920. *Price* 6*s. net.*

One cannot but agree that America took a leading part in crushing German militarism, but it was not infrequently noticeable that at one time, not so very remote, many attempts were made to attribute the victory wholly to the pressure exerted from across the Atlantic. This was only natural, but it was not all, for we were often made to feel that the tangled politics of the Near East were capable of solution only through American aid. But Professor Jastrow's book is a work of a different kind, and is above all such petty considerations.

No doubt now remains in the minds of students of the Eastern politics that our European diplomacy in the past was totally at variance with the natural laws which ought to govern our dealings with the East. In a word, the old game of checkmating one another, as we see to-day—and Professor Jastrow's book brings it more prominently before us—never furnished a lasting policy to quieten the East. This "traditional European policy," as the author terms it, had been a

continuous failure. It bred suspicion amongst nations, and the enemies of Oriental peace did not fail to take advantage of this. Professor Jastrow discusses at some length desirable future forms of government for Eastern countries, and as a substitute for the old order of things suggests mandates and internationalisation as possible plans. Both methods are closely examined, and the author urges strongly the claims of the latter. He thinks that in the case of mandates, there is a fear of the mandatory power becoming ultimately the permanent occupier of the country. That may be possible if the power of the League of Nations ceased to have control over such affairs, and the author concludes that the method of placing a country under international control is unquestionably the best. It may not have been adopted by the Allies, but none can deny its virtues.

The whole subject is treated with skill, and an honest attempt has been made to examine the facts, and to pass judgment on facts alone. The book demands close reading, and as a store of facts and sound deductions it is invaluable.

*Women of India.* By Otto Rothfeld, F.R.G.S., I.C.S., author of *Indian Dust, Life and its Puppets, With Pen and Rifle in Kishtwar.* Illustrated by M. V. Dhurandhar. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 1920.

This handsome quarto volume, with its beautiful coloured illustrations of types of Indian womanhood, is in many ways a new departure. That a whole book and the resources of modern art should be devoted to a sympathetic study of Indian womanhood is sufficiently noteworthy for those who know India. Many a European returns home after a sojourn of years in India without ever having seen the face of a Hindu or Mohammedan lady, and here we have numerous portraits of actual Hindu and Mohammedan ladies, along with delineations of their surroundings and the characteristics of the various types. The Indian ladies whom some returned Britishers may claim to have met, almost certainly belonged not to the great Hindu or Mohammedan communities, but to the small communities of modernised Indians—Indian Christians or Aryas or Brahmos, or to the small communities which should hardly be called *Indian*, like the Parsees and Indian Jews. The general attitude of India itself to its womanhood may be gauged by the latest education statistics, viz. that only 1·6 per cent. of the Hindu female population of school age, and 1·03 of the Mohammedan, are under instruction. One of the Indian Census problems, also, decade after decade, is that, contrary to European experience, in India males outnumber females, which disparity the editor of the Census Report in 1901 could only explain by the handicap put upon females at each stage of life by reason of the social usages of India.

Mr. Rothfeld's grouping of Indian womanhood is likewise modern and Western. First come the "ladies of the aristocracy," taking the word "aristocracy" in its English, not in its Indian caste sense. After these come the ladies of "the middle class," chief among them being the Brahman ladies, again, however, not because of their caste, but because their husbands bulk so largely among the professional classes. Then come the women of the working and aboriginal classes; finally, "the Dancing Girl of India" has a chapter to herself. The last-named chapter is, of course, characteristically Indian. Mr. Rothfeld attempts to justify "the dancing girl" as a social institution for India, where there are no unmarried ladies and no grown-up young ladies, cultured or uncultured, to mix with, where female ignorance is universal, where the opportunities of meeting ladies are so circumscribed, where the wife is first and foremost the housewife whose horizon is bounded by the dinner and the babies. The "dancing girls"

have accomplishments of a kind, and can "read, write, sing, and play as well as dance." *Per contra*, one may recall that in deference to an Indian protest, Lord Curzon, when Viceroy, declared that he would never again patronise a "nautch" at any reception which any Indian gentleman might arrange in his honour.

As his previous books have shown, Mr. Rothfeld possesses a pleasing talent for philosophising and generalisation. In illustration may be quoted his remarks upon the modern Parsees as a community detached and almost exclusively commercial, and upon the consequent outcome among the Parsee ladies of the present generation.

*Modern Japan. Its Political, Military, and Industrial Organization.* By W. M. M'Govern, Ph D., Lecturer on Japanese in University of London. London: Fisher Unwin, 1920. *Price* 15*s. net.*

The author of this interesting and valuable work commences with a statement of the National Psychology of the Japanese, and says recent investigations demonstrate the important part the Malays had in the formation of what we now know as the Japanese race, producing a type of civilisation quite distinct from that of their Oriental neighbours, such as China or India. With regard to the topographical features of Japan, the abundance of mountains and the lack of intercourse with outsiders have made the Japanese people clannish and strictly nationalist. Her swift streams (making hydro-electricity cheap and plentiful) are proving of immense benefit to industry, while the agricultural poverty of the country and the scarcity of iron have been powerful factors in shaping the policy of territorial expansion. As to climate, "Japan is bitterly cold in winter, stiflingly hot in summer, and moist and humid at all times."

"Foreigners have always been regarded with extreme suspicion in Japan. Even under the thickest veneer of politeness and courtesy, there remains an undercurrent of distrust and dislike of any alien." Yet within the last half-century when the New Régime was established, the Japanese found they had to go to foreigners to attain strength, knowledge, and civilisation. To reorganise their Navy they brought over British officers. To reorganise their Army they first employed French and afterwards Prussian officers. French legal experts prepared for them a code based on the Code Napoléon. American engineers taught them methods of industry. Germans educated them in medicine, public sanitation, and science. "English commercial methods were studied, and as regards banking we find a hotch-potch of American, English, German, French, and Belgian methods." "A very complete system of education, based first on American and later on German lines, was introduced, which included primary, secondary, and higher subjects, with especial emphasis upon technical branches. As soon as possible (1872) education was made compulsory."

In discussing "Japanese parties and policies," the author distinguishes two widely divergent parties. One of these may be called Territorial Expansionists, and the other Industrial Expansionists. The former aim at securing glory and provision for Japan's surplus population by territorial aggrandisements either in Siberia or in the South Sea Islands. The second party considers Japan should secure economic, and later political, control in China and, "turning completely away from agriculture, live as an economic parasite on her Celestial neighbour." The political future of Japan is shrouded in mystery. The result of the recent War was entirely unexpected, and may be said to have come as a severe shock to the nation. From this she has not yet recovered, and it may be that, as a result of it, she will swing into the stream of democracy. At present, however, she

"is the last stronghold of bureaucracy and autocracy, and as such must be carefully studied."

On 11th February 1889 the present political constitution of Japan came into being. By it, the seat of all authority was to be the Emperor, while the executive and administrative branch of the government was placed in the hands of the cabinet and the various officials subordinate to it. Legislative authority was vested in the Diet, consisting of two houses, an Upper composed of representatives of the nobility and the highest taxpayers, together with a certain number appointed by the Crown; while a Lower House was to consist of representatives chosen by the taxpaying population. The judicial authority was vested in the Judicial Courts appointed by the Emperor.

As the Emperor is considered a sacred person, his representation on coins or postage stamps is not allowed, so a chrysanthemum or the Imperial Dragon is substituted. When the Emperor passes through a street, all blinds and curtains in its houses have to be tightly drawn. In his sacred presence all feelings of joy or loyalty must be suitably repressed. Each Emperor assumes an official title, that of the present one being "Heavenly Emperor of great righteousness." If the vast majority of Japanese boys were asked what was their highest ambition, they would reply, "To lay down our lives for the Emperor." Thus Emperor-worship and militarism are inculcated.

"There can be no doubt that the late War has greatly benefited Japan both financially and politically. She went into it a debtor, and has emerged a creditor. Not only did she oust the German trade in the Far East, but also secured much of the English commerce in China, India, and Australia. The last two she may yet lose, but it is probable that China will become more and more her own province. While she has been enriching herself, all the other Great Powers (with the possible exception of the United States) have become impoverished, so that it seems likely that Japan will become one of the great dominating factors in international finance."

## AFRICA.

*In Morocco.* By Edith Wharton. London: Macmillan and Co., 1920. *Price 20s. net.*

This finely illustrated book contains a graphic account of an American lady's visit to Morocco in 1917. She remarks "Morocco is too curious, too beautiful, too rich in landscape and architecture, and above all too much of a novelty, not to attract one of the main streams of spring travel as soon as Mediterranean passenger traffic is resumed." She adds, "There is no guide-book to Morocco," so she gives her own well-written sketch of a journey (in a military motor car) from Tangier to Rabat and Sale, Volubilis, Moulay Idriss, and Meknez, Fez, and Marrakech, with chapters on Harems and Ceremonies, General Lyautey's Work in Morocco, Moroccan History and Architecture, Books Consulted, and a serviceable map of the part of Morocco which she visited. This map shows the wonderful progress Morocco is making under its French Protectorate, which has covered it with railways and roads. With regard to Robinson Crusoe's *Salle*, the French under General Lyautey have respected, as they always do, the native habits, beliefs, and architecture, and Mrs. Wharton describes it thus: "Everything that the readers of *The Arabian Nights* expects to find is here: the whitewashed niches wherein pale youths sit weaving the fine mattings for which the town is famous; the tunnelled passages where indolent merchants, with bare feet, crouch in their little kennels, hung with richly ornamented saddlery and arms, or with slippers of pale citron leather, and bright embroidered *babouches*; the stalls with fruit,

olives, tunnyfish, vague syrupy sweets, candles for saints' tombs, Mantegnesque garlands of red and green peppers, griddle-cakes sizzling on red-hot pans, and all the varied wares and cakes and condiments that the lady in the tale of the Three Calenders went out to buy that memorable morning in the market of Bagdad."

*The Tanganyika Territory (formerly German East Africa).* By F. S. Joelson. London: Fisher Unwin, 1920. *Price* 21*s. net.*

Britain's new Territory was regarded by the Germans as their most valuable overseas possession. Its extent is about equal to that of the combined Empires of Germany and Austria-Hungary. Starting from Dar-es-Salaam and proceeding inland by railway, with various excursions, the author gives a most interesting and valuable account of the country, its inhabitants, and everything the tourist would wish to know. Dar-es-Salaam, once the German capital, "is a lovely town on a lovely landlocked harbour. The well-kept roads and streets are flanked by splendid avenues of acacias, mangoes, and palms, while even the native quarter is surprisingly orderly and neat." Yet when we pass "from the steaming waste" by railway to Kilossa we may find "the stifling heat of the day has turned to cold so intense that those new to the cruel contrasts of Africa are exceedingly surprised." The author discusses the diseases of Tanganyika, and points out that tropical medical science has greatly reduced that once great scourge "blackwater fever." While malaria, dysentery, tick-fever, and typhoid remain, he thinks a more fruitful cause of death was often "too great indulgence in strong liquors,' adding, "for this trying climate temperance in all things is essential if one is to retain a fair measure of health."

The only large towns, according to European standards, are Tabora and Kigoma, the latter being the terminus of the railway, and but a short distance from the populous town of Ujiji, where Stanley met Livingstone. Travelling in the Bush and on the Rufiji River, with its crocodiles and hippopotami, is next described. The author considers that the major benefits that civilisation has conferred on Africa's black millions are "release from tyrannical rulers, the suppression of the slave trade, and the cessation of inter-tribal warfare." He states that the Germans treated the native women badly, while the British officer compelled more respect. Constant supervision is necessary in employing natives, and "until the native can be brought to see that steady labour is an integral part of life, and that work is uplifting and not degrading, as he now conceives it to be, the first real step in his advancement will not have been taken."

With regard to Christian missions, the author states that "it is a strange fact that the average European in the African tropics would never employ, unless perhaps as a book-keeper, carpenter, or in some such office, where he would be continually under supervision, one of those natives sweepingly referred to as 'Mission boys.'" He asks, "Why is the aversion to the Mission boy so general? Firstly, because he is so often untrustworthy in action and in speech. Secondly, because he is lazy. Thirdly, because he gives himself airs of superiority. And fourthly, because he is inclined to curry favour." With reference to corporal punishment he remarks, "Only very seldom does the Missionary resort to corporal chastisement, the sole punishment which corresponds with native ideas." He tells us that "it is not wonderful that the African turns easily to the religion of the Prophet Mahomet, for it is a faith that appeals to his wild unrestrained nature much more than does Christianity. The Koran sanctions plurality of wives, enjoins circumcision, and recognises slavery, all institutions in full force in the Bush." During the War the German Governor proclaimed that Germany was the "ally of Islam."

In a chapter on the British administration of Tanganyika the author refers to the immense change from the iron discipline of the natives under the German administration to their gentle and generous treatment under the British, and regrets the familiarity between black and white men which now occasionally occurs as not likely to benefit the native character. A useful map of Tanganyika is appended to this excellent book, but one misses a chapter giving practical advice to British emigrants and settlers as to the best and most healthy districts in the Territory, the capital required, the produce and return probably obtainable, and other questions vital to the prosperity and happiness of British emigrants, on whom will rest the success or failure of Tanganyika as a British dependency.

*Among the Ibos of Nigeria.* By G. T. Basden, M.A., F.R.G.S. London: Seeley, Service and Co., 1921.

This book is illustrated by a long series of remarkable photographs, and by a map of Southern Nigeria, showing the approximate boundaries of the area inhabited by the Ibo people. Its author has lived in the region for many years, and has become intimate with the natives, though he realises clearly the difficulties with which the European is faced in endeavouring to understand the African. Further, though he is engaged in missionary work, his treatment of polygamy and domestic slavery shows much tolerance and open-mindedness. He realises that in view of the heavy burden which the social system lays upon the women—all of whom are wives—any general introduction of monogamy would be attended with serious difficulties. In point of fact it is often the first or chief wife who insists upon a second marriage, usually after the birth of her first child, when, it may be presumed, the tasks laid upon her become too great for her unaided strength. To the practice of polygamy, on the other hand, the author is inclined to ascribe the small number of children who survive, though his reasoning does not seem very clear, for a number of other causes appear to be operative.

The staple food of the Ibo is the yam, in regard to which the author has much to say of interest, especially in view of the common belief in the great productivity of inter-tropical food plants. Each seed yam produces two tubers only, the small seed-tuber for the following year, and the large edible one. Cultivation is exceedingly arduous, and the crop is an exhausting one; Mr. Basden indeed expresses the opinion that without the catch crops grown on the cleared land yams would not repay cultivation. Their food-value is also low, and a man demands four to ten tubers a day, so that the amount required for an ordinary household is very great. In recent years the local supply has been insufficient, and the yam has had to be supplemented by imported provisions such as rice, biscuit, dried fish, and preserved food generally. This is largely due to the opening up of the country, with the resultant influx of Europeans and others, and the detachment of a number of the Ibos from agriculture owing to their employment as labourers, servants, and so forth. The natives have been accustomed to produce solely for their own needs, and, according to Mr. Basden, are too conservative to accept the idea that they should grow for sale. Further on, however, he intimates that it is doubtful whether—at least without slave labour—yams can be grown by native methods as a commercial undertaking. His conclusion is that it will probably be better for the native farmer to produce palm oil, copra, and so forth for the *foreign* market, and buy imported food for his own use. This obviously raises a whole series of difficult problems in regard to the future of the country.

We have, perhaps, said enough to show that the book is of much importance to those who would understand the problems of Tropical Africa.

*The Ila-speaking Peoples of Northern Rhodesia.* By the Rev. Edwin W. Smith and Captain Andrew Murray Dale. Two Volumes. London: Macmillan and Co., Ltd., 1920. *Price* 50*s. net.*

In 1909 the authors, a missionary and magistrate respectively, decided to collaborate with a view to recording their studies of the Ila-speaking peoples of Northern Rhodesia. Both had had long and intimate acquaintance with these races, both were expert linguists, and this combination, ideal for the purpose, has resulted in one of the finest works on African ethnology so far published. The book is not meat for babes, nor is it illustrated twaddle compiled from native interpreters anxious to please, but it is a careful selection and analysis of authenticated facts, which give an insight into the inner life of the Bantu not hitherto available.

The Ba-ila are a fortunate people as African natives go, for not only is their country fertile, but it is also a good cattle country, whilst the numerous creeks supply fish in abundance in the season. How their crops are sown, cattle raised, and fish caught are admirably detailed, as is also the economic side of village life. Where the book excels, however, is in the chapters dealing with social organisation, which set forth the inner life of the people without the evasion so common in ethnological works on native races. As the authors point out, sex is the most pervasive element in native life and overtowers all else; it is the rock against which break all efforts to improve the young and influence the old, and, unless this is recognised, no adequate understanding of the people can be arrived at. The particulars detailed leave little to the imagination, and show the Bantu north of the Zambesi as they really are, for, as all administrators and missionaries in Northern Rhodesia, Nyasaland, and other British Territories north of the Zambesi know, the description of the social life of the Ba-ila applies, with but few modifications, to all Bantu in those Territories. This may not be pleasant to recognise, but why close one's eyes to the actual state of things?

In dealing with the spiritual side of the Ba-ila, the authors continue the same careful system of analysis and selection of details, and the chapters which deal with this and kindred matters contain much food for reflection. They early arrive at the conclusion that the Ba-ila believe implicitly in the survival of personality after death, although the resurrection of the body is denied. The ingrained belief in the continuation of personality into an after-life, however, is not peculiar to the Ba-ila, but is common to all Bantu races, a fact which is not usually understood by the average traveller, who is apt to class all Bantu not professing Christianity or Mohammedanism as pagans. To what extent this spiritual belief has evolved, and with what hideous rites of witchcraft it is encumbered, are other matters, but the belief is there and can be built on. Like other Bantu the Ba-ila subscribe to the doctrine of metempsychosis, but they limit this to the few who wish to change their forms, and do not apply it to the majority, who, they believe, pass on to the spiritual world until the time for reincarnation arrives.

From an ethnological point of view the book is a classic, and should be studied by all whose work lies amongst the Bantu races north of the Zambesi.

H. R. W.

*The Glamour of Prospecting.* By Lieut. Fred. C. Cornell. With Illustrations and a Map. London: T. Fisher Unwin, Ltd., 1920. *Price* 21*s. net.*

With a vivid and racy pen the author narrates the story of his wanderings in South Africa in his search for minerals, especially copper, gold, emeralds, and

diamonds. Time and again he failed to find anything more than traces or indications of these; often he was parched with thirst or numbed with cold; he ran incredible risks from seen and unseen dangers; he endured hardships which would have broken the heart of any man but himself; nevertheless, if he gleaned information about alleged deposits, he was always ready to start off across waterless deserts or lose himself among unexplored mountains in his endeavour to locate the elusive riches. Among regions he explored were the lower reaches of the Orange River, the Richtersfeld Mountains in Little Namaqualand, the Southern Kalahari (with difficulty he got permission to prospect in this "Royal Game Reserve"), and on several occasions he visited the practically unknown Great Falls of the Orange River. Just before the War broke out it would appear that he discovered fruitful pipes in British territory on the very edge of what was then German South-West Africa.

His book is well worth study. He gives excellent descriptions of stretches of wild country which, as a result of the War, are now traversed by or within easy reach of a railway, and of other stretches which are still untamed. Of the various pests which make travelling in these regions anything but pleasant he had more than his share, but he bore them all with humorous fortitude. He has a keen appreciation of the beauties of his surroundings. Few white men can have had such an extensive experience of sand dunes and pans, and he is always interesting, whether he is giving accounts of their appearance or theorising about their formation.

He came in contact with, and gives his impression of, Maritz the rebel, and he has something to say regarding the *Kultur* of the Teuton in South-West Africa. In connection with the latter one quotation may be permitted. "Ex-German soldiers used to show whole series of illustrated post-cards depicting wholesale executions and similar gruesome doings to death of these poor natives (Hereros and Hottentots). One of these, that enjoyed great vogue at the time, showed a line of ten Hottentots dangling from a single gallows, some still standing on the packing-cases with a noose round their necks, waiting for the soldiers to kick their last standing place away; some kicking and writhing in the death struggle, for the short drop did not break their necks, but only strangled them slowly, and one having a German soldier hanging on to his legs to finish the work more quickly. And each and every German soldier in the photo was striking an attitude and smirking towards the camera in pleasurable anticipation of the fine figure he would cut when the photo was published. This was only one of the many that enjoyed a big sale in German South-West Africa for the delectation of admiring friends in the Fatherland."

## AMERICA.

*In Lower Florida Wilds.* By Charles Torrey Simpson. With 64 Illustrations and 2 Maps. New York: G. P. Putnam's Sons, 1920. *Price* 15*s.*

For more than twenty years Mr. Simpson has been a resident in this wonderful part of the United States, and has been indefatigable as an observer of all its moods and forms of life. Nothing seems to have escaped his notice, and no hardships have deterred him from penetrating untrodden wildernesses in search of curious examples of the flora and fauna. Much of the life is disappearing, so this volume is valuable as an interesting and finely illustrated record of a richly endowed region which, sooner or later, will be "improved" by mankind in an endeavour to make it conform with modern ideas of utility.

The author is not a dilettante collector with a faculty for writing pleasantly and

popularly on scientific matters. He has an acute mind, and has theories regarding several of the natural phenomena he has observed. One of the most interesting of his theories occurs in the first chapter, where, in dealing with the building of the land, he propounds his idea of how most of the "series of long, narrow, sandy islands and peninsulas lying parallel with the mainland shore and at no great distance from it" have resulted, not from the "action of ocean currents running parallel with the shore which carry and deposit sand in long narrow bars," but from the action of the "ordinary tides aided by occasional storms which sweep in upon the shore." His diagram and explanation are illuminating, and suggest that the theory is feasible and worthy of fullest investigation.

But although Mr. Simpson can advance theories which compel respectful attention, it must not be assumed that he is a meticulous specialist. He does not "dig in a tunnel and see nature through a pinhole," but attempts to interpret nature's mysteries broadly, devotedly, and reverently. The enchantment and romance of the open air, amid a riot of colour and foliage, sun and shade, bird and vegetable life, inspire him to search as widely as possible in his attempt to add something to the stock of knowledge. In such a region he could hardly fail to discover some wonderful and astounding specimens. He measured one stem of *Agave neglecta*, and found it was thirteen inches in diameter at the base and forty-two feet eight inches high. It was produced in about a month. A great orchid, *Cryptopodium punctatum*, had thirty-one flower stems over four feet long, with perhaps a thousand blossoms. Cacti are usually associated with more or less desert places, but on the south shore of the mainland Opuntias and two species of Cereus "grow profusely in damp or even muddy situations . . . in fact it seems that these desert plants are attempting to become aquatics." Where the ground becomes too swampy "they grow as epiphytes." Marvels of mimicry are related, one of the most striking being the method of protection adopted by the beautiful shell-fish *Olivia litterata* when searching for food about the sea-shore sand; and the various devices forest plants have evolved to combat devastating fires, and to ensure their regeneration after the fires have passed, are discussed. He notes the characteristics and customs of the Seminoles, a fast disappearing tribe of Indians inhabiting the Everglades. But enough has been said to give a taste of the richness of the volume. The layman or naturalist should go to the book, assured that a feast of enjoyable instruction awaits him.

*Cape Cod and the Old Colony.* By Albert Perry Brigham, Sc.D. With 35 Illustrations and Maps. New York: G. P. Putnam's Sons, 1920. *Price* 15*s.*

At once we can say it has been a pleasure to read this book, written as it is with such obvious sincerity and love for the subject. Professor Brigham has explored and investigated this notable region, has come under the spell of its enchantment, and has been moved to record his impressions. In doing this he has done good service. The Old Colony was not well known, but that reproach is now removed.

The author does not claim his work as a history or a geography, but in his preface he says that "while explaining rather carefully the physical features that lie about Cape Cod, the real motive is the way men have used these lands and waters, and come under their influence." How the inhabitants "have adjusted themselves to the mobile conditions of nature" is his theme. In accordance with this plan he gives a popular account of the geology of the Cape, shows how the coastline has been modified by various influences, and gives pictures of life in the region from the time of the landing of the Pilgrim Fathers. Through three

centuries we get glimpses of how sea and land moulded the lives of the people, and how great the struggle to gain a livelihood was. Nothing daunted, the settlers down the years gradually brought the inhospitable region under their control. Formerly the return of the land was poor, but nowadays, under the impulse of modern scientific methods, agriculture is flourishing, and flower and tree nurseries are transforming or about to transform the suitable areas. Manufactures are limited but thriving. In the old days the colonists would have starved but for the fishing; cod fishing in American waters reigned supreme, and the economic value of this fish played an important part in American history. To-day the Cape fishing is "specialised and localised, and no longer is the chief occupation or the consuming thought of the majority." The variation of the population during the period under review is dealt with, and the tourist will find much useful information about roads, waterways, and towns.

*Through British Guiana to the Summit of Roraima.* By Mrs. Cecil Clementi, M.B.E. With 14 Illustrations and a Map. London: T. Fisher Unwin, Ltd., 1920. *Price* 12*s.* 6*d. net.*

The only fault to be found in this charming book is contained in the title. As Mrs. Clementi explains, the top of Roraima is a plateau whose area "cannot be less than fifty square miles." The word "summit" therefore is scarcely appropriate. In the text, and also on the route-map at the end of the volume, the height of Roraima is given as 8625 feet above sea-level, but there is no indication as to whether this is or is not the culminating point of the plateau. Mrs. Clementi is the first woman to visit Roraima, and she seems to have thoroughly enjoyed the expedition. Her highest praise is for the pure air of the upland savannahs, so invigorating after the steaming heat of the coastal plain. The way led by the falls of Kaietuk (not Kaieteur as the maps have it), which rank among the grandest in the world. They present a sheer fall of over 800 feet, or about six times the height of Niagara. The great need of the uplands of Guiana is population. At present there are hundreds of square miles of healthy savannahs peopled only by a few tribes of Indians. A beginning has been made with cattle, but little can be done without great improvement and extension of the existing means of communication. The book is gracefully written and well illustrated.

*Seeing the Far West.* By John T. Faris. Philadelphia and London: J. B. Lippincott Co., 1920. *Price* 25*s.*

This is a beautifully illustrated account of the scenery, with historical notes on the early settlement of the wilder and more picturesque Western States of America. It includes the Cañons of Arizona and Colorado, the desert regions of New Mexico, Nevada and California, the wonderful geyser plateau of the Yellowstone Park, and the snow-clad mountains of Glacier Park in Montana, as well as many of the other beauty spots in Washington and Oregon on the Pacific slope.

The landscapes in the Rocky Mountain area are rich in picturesque shapes and colours, and the fine photographs convey some idea of the forms of the cliffs, peaks, and valleys, but give no impression of the wonderful tints and brilliant or even flaring colouring of many of these rocky scenes. A few coloured pictures would have enhanced the record, or even some good drawings of landscapes that the camera has failed to reproduce effectively. For example, the picture at p. 109 conveys a very inadequate impression to one who has seen the marvellous landscape of the Grand Cañon of the Colorado. The author describes these scenes with great enthusiasm and extensive knowledge, and the volume will prove a valuable

companion to travel in what to many on this side of the Atlantic is as yet an almost unknown land.

The great defect, however, in the scenery of Western America is its dryness. With the exception of the fine Yellowstone Lake and the uninteresting Great Salt Lake of Utah, there are almost no spots of bright cool water to light up the landscapes in the region south of Montana and Washington.

In this respect the scenery improves towards the north, where there are signs of ice action and where lakes become more numerous and the landscape is more moist and cool.

## OCEANIA.

*Among the Natives of the Loyalty Group.* By E. Hadfield. London: Macmillan and Co., Ltd., 1920. *Price* 12*s.* 6*d. net.*

Mrs. Hadfield has made a most valuable contribution to the ethnography of a corner of the South Seas. She and her husband were resident missionaries for the first eight years on the Island of Uvea, and for seventeen years more on Lifu. Their own bungalow on Uvea having no fireplace, Mrs. Hadfield spent many an evening beside the roaring wood fire in the grass hut of the native caretakers taking part in their gossip and listening to their tales. She was careful to accept without comment all that was said, and thus acquired the complete confidence of her native friends. The sifting and testing of the mass of information came afterwards. Her book is composed of two parts. The first is a systematised account of the life of the tribes, general characteristics, social organisation, work, navigation, division of time, languages, amusements, superstitions, cannibalism and war, births, marriages, and deaths. The second part gives thirty-two Loyalty Island legends and a list of Lifuan proverbs. An index is added which is copious, well-arranged and accurate. A large number of really illustrative photographs enhances the value of the volume. Mrs. Hadfield mentions her inexperience as a writer, and trusts that the value of the knowledge she has gathered will compensate for her deficiencies in the craft. She need have had no misgiving as to her success. When one thoroughly knows one's subject and is in love with it, the skill comes.

*Islands Far Away.* By Agnes Gardner King. With an Introduction by Sir Everard im Thurn, K.C.M.G., K.B.E., C.B. Illustrated with 67 reproductions of Drawings by the Author, and 2 Maps. London: Sifton, Praed and Co., Ltd., 1920. *Price* 18*s. net.*

Miss Gardner King paid a long visit to the Fiji Islands in 1912. She was accompanied by Mrs. Hopkins, the widow of a former magistrate in Fiji, who had resided there from childhood. Miss King was thus enabled not only to see the ordinary tourist sights, but much away from the haunts of white civilisation, and even to travel inland where few, if any, white women had preceded her. Her book therefore contains much of ethnological interest, accounts of habits and customs worthy of preservation, but which are fast passing away. It is adorned with reproductions of numerous sketches by the author, whose pencil seems always to have been busy, with charming results. Sir Everard im Thurn has written a valuable historical introduction, as well as a short but practical glossary. Two useful maps and an adequate index round off a book which may cordially be recommended to all lovers of the South Seas. Miss Gardner King was a lover of Stevenson, and visited his grave near Apia. The Ala Loto Aloza (the Road of the Loving Heart) had at that time practically disappeared, but the tomb with its inscription was in good preservation.

## GENERAL.

*By Sea and Land: Some Naval Doings.* By E. Hilton Young, M.P., Lieutenant-Commander, R.N.V.R. London: T. C. and E. C. Jack, Ltd., 1920. *Price* 12*s.* 6*d. net.*

Those who commence this book by a glance at the table of contents—Prologue, Scapa Flow, Serbia, etc., will probably select for first perusal Chapter v., "Zeebrugge, H.M.S. *Vindictive*." Here they will find the story of the famous fight told by one who took part in it. He tells of the preliminary training of the crew—remarking that there was always something a little perfunctory about the orders for what they were to do when they were coming away again—of the abortive attempts, and of the amazing adventure itself, in which he was wounded.

This, however, was only the most crowded hour in a series of adventures which the writer had in different parts of the world. At the opening of the War chance joined him to a friend who was going north to give much-needed help to Admiral Jellicoe's staff in de-coding telegrams, and shortly he found himself selected for executive duty on H.M.S. *Iron Duke*. His next experience was in Serbia, where he was appointed to a post with the British Naval Mission and saw something of the worst horrors of the Serbian retreat. Then came a short spell of leave. "It was enough for content only to be in London again and to look at it and find it the same as ever." This gave place to employment in the Harwich Forces and next to the command of a siege gun among the Belgian sand dunes. The last phase was the charge of an armoured train in the Archangel region, where he describes the journey through the forests as resembling a journey along the bottom of a narrow ditch. It was there that the Armistice found him and his company—in the only region which the Armistice did not affect.

It is a story that cannot fail to attract. It reflects, as it moves along, the mood of the moment, and with its doubts and expectations it brings in many details which give fresh meaning to the scene. The personality of the writer never obtrudes itself. Yet it adds to the interest of the book when one turns to *Who's Who* to find that when war began he was a financial writer on a London paper, that he was awarded the D.S.O., and that in the intervals of foreign service he managed to get himself elected to Parliament. All who read the book will feel grateful to him for having written it.

*Mountaineering Art.* By Harold Raeburn. With Diagrams and Illustrations. London: T. Fisher Unwin, Ltd., 1920. *Price* 16*s. net.*

This book may be described as the Badminton *Mountaineering* brought up to date. We are aware that this is very high praise. But Mr. Raeburn has really done more. The Badminton volume will always be read for its literary style, its historical interest, and for the varied instruction of practical value which it contains. Yet even at its best, though that is charming, it was too apt to mistake assertion for argument and was far too much bound by tradition, too conservative, in fact rather mid-Victorian and a trifle middle-aged. Mr. Raeburn puts it very well when he says that the solemn warnings somewhat pontifically issued from time to time tended to defeat their own purpose. Young climbers visiting the Alps experienced none of these terrible dangers, and were tempted, hastily but inevitably, to the conclusion that they did not exist. Mr. Raeburn then, while far from despising or in any way under-rating the good work done in the past, is absolutely right in striking out a line of his own. He is not afraid to controvert principles which seemed to be established if his own experience has led him to other conclusions. It is surely time, for instance, that the old canon of "three on

a rope," or rather the negative one "whatever number is right two is wrong," should be deposed. Mr. Raeburn points out that, almost always, four are better than three, and that two good men may very likely be greatly endangered and certainly much delayed by the company of a third if he is incompetent. The writer remembers more than one occasion when a party of two meant safety and success. Every page of the book is full of interest, and if this were a mountaineering magazine we should be tempted to comment at some length. To a geographer, however, the most valuable section is the last, that on Exploration. Here the author gives his views on the possibility of ascending Mount Everest, or Chomokankar as he prefers to call it, as well as other lofty mountains, discussing in particular the questions of equipment, provisions, and mountain sickness or lassitude. The last of these is a most difficult subject on which authorities are not yet agreed. The reviewer once had a brief attack at a height of about 14,000 feet on the easy slopes just below the summit of the Grand Combin. He was in first-rate condition, and there were no dietary causes of any kind. The party (guideless) had spent an hour and a half cutting up the well-known wall above the "corridor" with a very cold wind blowing, so a slight chill may have been incurred. But he went on to the top, and was benighted on the then unclimbed N.W. ridge without any ill after-effects. Mr. Raeburn is strongly of opinion that there is no reason why Mount Everest should not be climbed. The principal difficulty would be the porterage of supplies, but he thinks that aeroplanes might overcome this difficulty by reaching at least the lower camps across the tropical jungle. It is interesting to note the announcement, since the book was written, that Mr. Raeburn is to take part in the Royal Geographical Society's attempt to ascend Mount Everest (see p. 123).

Altogether the author is to be heartily congratulated on a treatise on mountain technique which will not be superseded for a long time to come. The illustrations are numerous and excellent, and the glossary, list of authorities, and index are admirable. We have noticed only two or three trifling typographical errors—*is* for *are* p. 44, *Arres* for *Arre* p. 142, *sono* for *sano* p. 179. The height of Mount Everest is now fixed at 29,146 feet. And Mr. Raeburn, in the next edition, should strike out the word *the* before Tirol.

*The Statesman's Year-Book: Statistical and Historical Annual of the States of the World for the Year* 1920. Edited by Sir J. Scott Keltie, LL.D., assisted by M. Epstein, M.A., Ph.D. London: Macmillan and Co., 1920. *Price* 20*s*.

The editors of this most useful work of reference keep moving with the times. Owing to the numerous changes on the political face of Europe, statistics can in many cases be rough approximations only. Areas cannot be determined until boundaries are fixed, and a census of each political unit must be taken before definite figures of population can be given. Under such conditions the editors deserve our thanks for the manner in which they have faced difficulties and supplied available data for the world. Messrs. Bartholomew's maps of the Near East and Central Africa show the present position in these parts as well as is possible, in view of the fact that many of the boundaries are not yet known. If the 1920 volume still shows the transition stage in areas that have been affected by the Great War, we are glad to see new sections dealing with Czecho-Slovakia, Danzig, Poland, and Jugo-Slavia (under Serbia). The sections on Russia and Turkey include separate descriptions of parts of those former empires that have achieved or may achieve recognition as independent States. Altogether the volume retains the trustworthiness of its predecessors, and is a most useful guide to the activities of the world at large.

# NEW MAPS AND ATLASES.

## EUROPE.

**ORDNANCE SURVEY OF SCOTLAND.**—The following publications were issued from 1st July to 30th September 1920:

One-inch Map. Printed in Colours. Price 2s. Loch Lomond and Trossachs (Tourist Map).

Six-inch Maps revised. Quarter-sheets with contours in red. Price 1s. 6d. each. *Renfrewshire.*—3 SE.

1:2500 Scale Maps revised, with houses stippled and with areas. Price 5s. each. *Argyllshire.*—Sheets 192—13; 212—6; 213—10, 14; 223—11, 12, 15; 235—6, 7, 11, 15; 242—2, 3, 7 and 8, 10, 16; 247—3, 6, 7, 10, 11, 15; 252—6, 9, 10. *Dumbartonshire.*—Sheet 18—4. *Roxburghshire.*—Sheets 30—6, 10; 38—7, 9, 10, 13, 14; 40—8.

Special Enlargements from 1:2500 to 1:1250 Scale. Price 6s. each. *Fifeshire.*—Sheets 9—9 NE., SW., SE.; 10 NW., SW., SE.; 13 NW., NE.; 14 NW., NE.

The following publications were issued from 1st October to 31st December 1920:—

Six-Inch Maps revised. Quarter sheets with contours in red. Price 1s. 6d. each. *Fifeshire.*—12 SW.; 13 SE.; 14 NE., SW., SE.; 16 SW.; 19 SE.; 20 SW.; 21 NW., SE.; 22 NE.; 28 NW., SW., SE.; 32 S.E.; 33 NE., SW., SE.; 34 SE.; 35 NW., NE. SE. and 36 SW.; 37 NW., NE.; 38 NW., NE.; 39 NW., NE. *Fife and Kinross-shire.*—25 SE.; 26 NE., SW., SE.; 27 NW., SW.; 32 NE.; 33 NW.; 34 NW., NE., SW. *Kinross-shire.*—25 NW.

1:2500 Scale Maps revised, with houses stippled and with areas. Price 5s. each. *Argyllshire.*—Sheets 134—1, 5; 142—10, 14; 153—10; 191—16; 192—14; 201—4, 8, 12, 15, 16; 212—2, 5, 7, 9, 10, 14; 213—13; 224—1; 235—2, 3; 241—2, 6, 7, 10 and 9, 13, 14, 15; 242—6, 11, 12, 15; 251—1, 10, 11, 12; 252—2. **Dumbartonshire.*—Sheets N 24—13; N 25—4. **Roxburghshire.*—Sheets N 10—6, 7, 10, 11, 16; N 14—2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16; N 15—1, 2, 3, 5, 6, 9, 10, 13, 14; N 19—6, 8; N 20—1, 2, 3, 4, 6, 7, 8, 10, 11, 12, 14, 15, 16; N 21—1, 2, 3, 5, 9; N 22—4, 8, 12, 16; N 23—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16; N 24—6, 7, 9, 10, 11, 12, 13, 14, 15, 16; N 25—6, 7, 8, 9, 10, 12, 13, 14, 15, 16; N 26—1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12; N 28—3; N 29—2, 3, 5, 6, 7, 8, 9, 11, 12; N 30—1, 2, 3, 4, 5, 8, 9, 12; N 31—1, 5, 6, 9, 10; N 35—10, 11, 16; N 37—16; N 40—4, 12, 15, 16; N 41—1, 5, 9, 13; N 42—3, 4, 7, 8 and 12, 11.

* Revised on new meridian, the plan numerals therefore differ from those of the previous Revision.

Special Enlargements from 1:2500 to 1:1250 Scale. Price 6s. each. *Edinburghshire.*—Sheets 3—4 NW.; 7 NE.

**MISCELLANEOUS.**—A Description of the Ordnance Survey Large Scale Maps of Great Britain, with Specimens, Symbol Sheets, and Diagrams. Price 6d.

A Description of the Ordnance Survey Small-Scale Maps, with Specimens and Indexes. Second Edition. Price 6d.

**BARTHOLOMEW'S HALF-INCH TO MILE MAP OF SCOTLAND.**

**Sheet 9. Berwick and Haddington.** Orographical colouring. New Edition.

**Sheet 11. Oban and Loch Awe.** Orographical colouring. New Edition.

Price 1s. 6d. net; or mounted on cloth, 3s. net.

*John Bartholomew and Son, Ltd., Edinburgh.*

**SOUTHERN SCOTLAND AND ADJACENT ENGLISH COUNTIES.** By Alexander Gross, F.R.G.S. *"Geographia" Ltd., London.*

**BARTHOLOMEW'S HALF-INCH TO MILE MAP OF ENGLAND AND WALES.**

**Sheet 18. Birmingham, etc.** Orographical colouring. New Edition.

**Sheet 36. South Devon.** Orographical colouring. New Edition.

Price 1s. 6d. net; or mounted on cloth, 3s. net.

*John Bartholomew and Son, Ltd., Edinburgh.*

**KESWICK, ULLSWATER, ETC.** One inch to mile. New Edition.

Price 2s. net; or mounted on cloth, 3s. 6d. net.

*John Bartholomew and Son, Ltd., Edinburgh.*

**BARTHOLOMEW'S CONTOUR MOTORING MAP OF THE BRITISH ISLES**, showing the best touring roads. Price 10s.

A new edition of this popular road map.

*John Bartholomew and Son, Ltd., Edinburgh.*

**BARTHOLOMEW'S POLITICAL MAP OF EUROPE, 1920**, according to treaties of Paris, showing the old States of 1914 and the new of 1920. Scale 1 : 5,250,000. Price 5s. *John Bartholomew and Son, Ltd., London.*

**STANFORD'S LONDON ATLAS SERIES.**

**Europe**, with boundaries to date; 160 miles to an inch. Price 4s.

*Edward Stanford, Ltd., London.*

**CARTA D'ITALIA** speciale per Automobilisti, Ciclisti e Turisti. 1 : 250,000. Sheets 4, 7, 8, and 11. Price 2 l. each.

*Istituto Italiano d'Arti Grafiche, Editore; Bergamo.*

These are four sections of a map which covers the whole of Italy in 35 sheets on the scale of about 4 miles to an inch. It is specially constructed for motorists and cyclists. Roads are graded, dangerous hills are marked, distances along the routes are given in kilometres, and garages are indicated.

**MAPA POLSKI.** By E. Romer. Scale 1 : 850,000. Four sheets.

*Ksiaznica Polska, Warsaw.*

A new map of the area covered by the Poland of 1772, with orographical colouring, showing the plebiscite areas, old and new boundaries, etc.

## AFRICA.

**GENERAL MAP OF CAIRO.** 1 : 15,000. Published 1920.

*Survey of Egypt.*

An interesting feature of this map is that in addition to the information usually shown on a town plan the area of cultivation is marked. The plan, which has an inset with continuation to the suburb of Heliopolis, is clearly printed.

**PHILIP'S SMALLER SCHOOLROOM MAP OF AFRICA.** Size about 42″ × 36″.

Price, cloth, rollers and varnished, 7s. 6d. net.

*George Philip and Son, Ltd., London.*

| | | | |
|---|---|---|---|
| **GOLD COAST.** | **1 : 125,000.** | Dadiaso | 72 . I . IV. |
| | | Obuesi | 72 . K . III. |
| | | Prampram | 73 . M . I. |
| | | Akuse | 73 . O . III. |
| | | Addiah | 73 . M . 2 . N . I |
| | | Asafo | 72 . J . III. |
| | | Enchi | 72 . P . I. |
| | | Accra | 72 . R . II. |
| | | Kibbi | 72 . L . III. |
| | | Komfrodua | 72 . L . IV. |

Price 5s. per sheet.

*Director of Surveys, Gold Coast.*

## NORTH AMERICA.

**UNITED STATES SURVEY.** Topographic Sheets on various scales. The figures after the name of each State indicate the number of sheets received.

**Scale 1 : 125,000.**—Arizona, 1 ; California, 1 ; Colorado, 2 ; Georgia, 1 ; Montana, 1 ; New Mexico, 1 ; Washington, 2.

**Scale 1 : 62,500.**—California, 13 ; Colorado, 1 ; Florida, 3 ; Georgia, 10 ; Illinois, 5 ; Indiana, 1 ; Iowa, 1 ; Kansas, 1 ; Kentucky, 3 ; Maine, 3 ; Massachusetts, 1 ; Michigan, 6 ; Minnesota, 3 ; Missouri, 1 ; Montana, 1 ; Nevada, 2 ; New Hampshire, 4 ; New Mexico, 7 ; New York, 1 ; Ohio, 2 ; Oregon, 1 ; Pennsylvania, 1 ; South Carolina, 16 ; South Dakota, 1 ; Texas, 3 ; Virginia, 14 ; Washington, 4 ; West Virginia, 1.

**Scale 1 : 31,680.**—California, 14 ; Texas, 22.

**Scale 1 : 21,120.**—South Carolina, 13.

*United States Geological Survey, Washington.*

## EDUCATIONAL AND GENERAL.

**WORLD.—Index Chart of Admiralty Sailing Directions.** New edition, 1920.

*Hydrographic Dept., Admiralty, London.*

**STIELER'S HAND ATLAS.—100 Years Edition.** Parts I. and II. 2 Maps in each. To be completed in fifty four parts. Price 7 marks 50 each part.

*Justus Perthes, Gotha.*

These are the first parts of a German Atlas which have reached us since the War. From the preface one notes that the principal changes from the last edition are a series of maps of Central Europe, on the scale of 1 : 925,000 instead of 1 : 1,500,000, and a reduction in the scale of the maps of Australia from 1 : 5,000,000 to 1 : 8,000,000. The closing paragraph of the preface is rather significant. Referring to an obituary notice of the late Dr. Bartholomew, in which it had been stated that it was his endeavour to "dethrone Gotha," the writer adds that the hundred years edition of *Stieler's Hand Atlas* proves that the downfall of Germany politically has not affected the pre-eminence of German scientific cartography. But one cannot escape the feeling that the publishers are themselves quite conscious of the defects of the present edition. The maps in the first two parts were drawn and engraved many years ago, and well uphold the standard of the house of Gotha, while they appear to have been revised to date. It is in the technical matters of reproduction that they fail so sadly. Amongst other points one notices that the beautiful black which one associated with Stieler is now of a muddy hue, and that a grey printing is disposed over the maps in an

irresponsible sort of way. Where a high standard has been set in the past any falling away from that standard must be reckoned a failure. It is not necessary to compare the present atlas with any of the British productions; its real failure is that it does not bear comparison with the pre-War Stieler.

**THE "TIMES" SURVEY ATLAS OF THE WORLD.**—A comprehensive series of Maps reduced from the National Surveys of the World and the special surveys of travellers and explorers, with General Index of over two hundred thousand names. Prepared at the Edinburgh Geographical Institute under the direction of J. G. Bartholomew, LL.D., F.R.S.E., F.R.G.S., Cartographer to the King.

To be published in thirty-seven parts, of which Parts I. to XXV. have already appeared. Price 2s. 6d. per part.

*Office of "The Times," London.*

**"THE DAILY TELEGRAPH" VICTORY ATLAS OF THE WORLD.**—Edited by Alexander Gross, F.R.G.S. Issued in parts, price 2s. each. This Atlas is now completed. *"Geographia" Ltd., London.*

**PHILIP'S HANDY VOLUME ATLAS OF THE WORLD.**—Thirteenth edition By E. G. Ravenstein, Ph.D. Price 4s. 6d. net.

*George Philip and Son, Ltd., London.*

**PHILIP'S ATLAS OF MODERN GEOGRAPHY.**—Edited by George Philip, F.R.G.S. New and revised edition. Price 2s. 3d.

*George Philip and Son, Ltd., London.*

**PHILIP'S MODERN SCHOOL ATLAS.**—Edited by George Philip, F.R.G.S. Twelfth edition. Price 5s. *George Philip and Son, Ltd., London.*

A new edition of this atlas, a feature of which is the set of maps showing population on a commercial basis, in the manner described in the *Geographical Journal* in 1917. In passing one may note that on some of the physical maps the hill hachures require co-ordinating with the contours.

**PHILIP'S SENIOR SCHOOL ATLAS.**—Edited by George Philip. Price 10s. 6d. net.

*George Philip and Son, Ltd., London.*

The general scope of this atlas, the printing, and the paper are alike excellent. Should another edition be wanted, however, a few points might be improved on the geographical side. As in the *Modern School Atlas*, there are discrepancies between hachures and contours on some of the maps. Amongst minor points which call for attention, one notices on plate 67 that, while several places are named in Labrador, probably the most important—Battle—is omitted; the recently discovered Belcher Islands are omitted from plate 64; on plate 2 the colouring of the sea north of Queen Mary Land seems to have been inverted.

**PHILIP'S ATLAS OF COMPARATIVE GEOGRAPHY FOR SECONDARY SCHOOLS.**—Edited by George Philip, F.R.G.S. Price 3s. A new edition.

*George Philip and Son, Ltd., London.*

**L'ESTRANGE'S PROGRESSIVE COURSE OF COMPARATIVE GEOGRAPHY.—Part IV. Eurasia and North America.** Price 2s. 6d.

*George Philip and Son, Ltd., London.*

**"O.R.E." ATLAS. Part 3—Asia.** Edited by Thomas Franklin. Price 1s. 6d.

*W. and A. K. Johnston, Ltd., Edinburgh and London.*

**THE STUDENT'S OWN CONTOUR ATLAS AND GEOGRAPHY.—The World.** Price 4d.

*The Grant Educational Co., Ltd., Glasgow and London.*

**THE "LEADING" MAPPING BOOK.** By W. Lucas, B.Sc. Price 6d.

*Herbert Russell, London.*

THE SCOTTISH

GEOGRAPHICAL

MAGAZINE.

## A HOT-WEATHER TRIP IN THE JEZIREH.

By Major Campbell Munro, I.M.S.

*(With Sketch-Map and Illustrations.)*

In the summer of 1918, when the British front line troops in Mesopotamia were encamped at Samarra, 80 miles north of Baghdad, I was fortunate enough to be detailed to accompany a party of Bedawin on an interesting expedition across the desert. The Bedawin were employed to convey another officer and myself round the Turkish right flank on the Tigris and behind their lines for about 150 miles in a north-westerly direction, to a point due west of Mosul. The Arabs' part of the bargain was to take us safely, and, if possible, secretly, to our destination, and, when our business there was completed, to bring us back to Baghdad as quickly as possible. We on our side were pledged not to interfere with the details of their plans, and were to place ourselves unreservedly in the hands of the Sheikh for the period during which we were to be his guests. Under such conditions we obtained an interesting glimpse of the "Budoo" in his native element and an experience of the *modus operandi* of an Arab "raiding party."

Our wanderings took place in the Jezireh (Fig. 1), the vast undulating plain of Northern Mesopotamia which lies between the Tigris and Euphrates rivers and stretches from Diarbekir in the north to Baghdad in the south. The desert is some 50,000 or 60,000 square miles in extent, and almost its sole inhabitants are nomad Kurdish and Arab tribes.

In ancient times the Jezireh was densely inhabited and extraordinarily prosperous. Great cities stood on the banks of the rivers. Watered by an efficient system of irrigation canals, much of the land was highly cultivated, while huge flocks of sheep and cattle grazed on the plains. This prosperity continued from the earliest recorded times

under, successively, Semitic, Assyrian, Babylonian, Persian, Greek, and Arab domination, until it was wiped out by the great Mongol invasions of the thirteenth century of our era. Then Hulagu and his hordes not only obliterated the irrigation works, but literally exterminated the population that had cultivated the country, which from that date to this has lain a barren waste of desert.

In this spacious playground the Budoo still amuses himself after

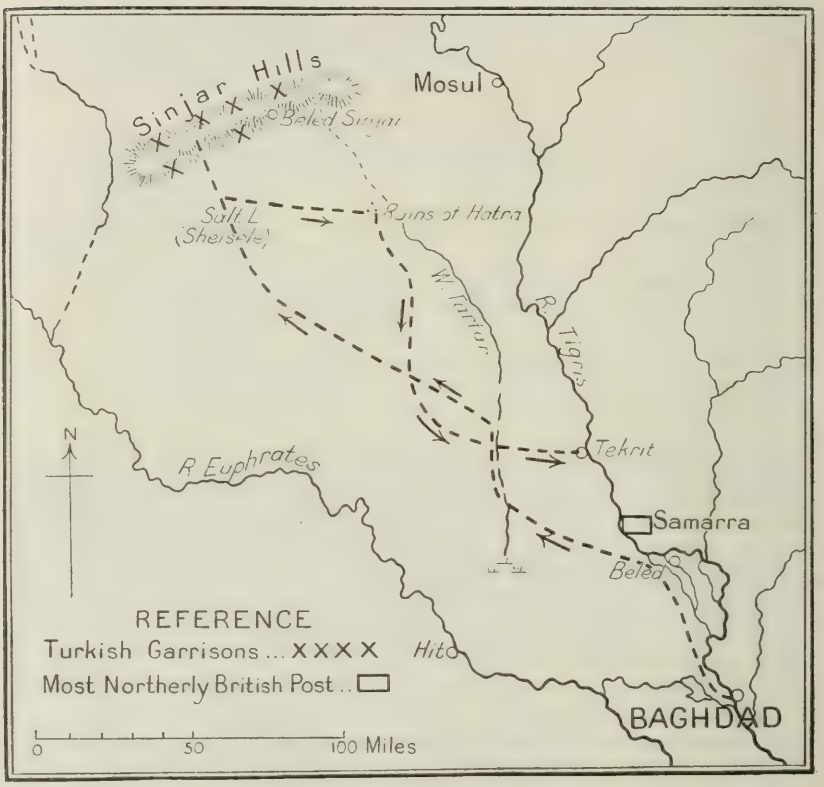



Fig. 1.—Part of the Jezireh, showing author's route.

the fashion of his forefathers. In the hot weather he finds pasture for his flocks by the rivers in the extreme northern part of the Jezireh. In the winter he wanders south of Baghdad to meet the early grazing. But in the springtime, when the grass is plentiful and rich, and water is abundant in the wells; when whole tribes can gather at the desert springs without fear of shortage of fodder and water; when horses and camels are sleek and fit, and young blood riots in the veins; then the Bedawin gives himself over to the delights of the prince of sports, desert warfare and foray. Sir Mark Sykes says: "In March and April, all Jezireh is at war, not because the people are bloodily minded,

not because they are rapacious, not because they are savage ; but because it is *such fun*."

'Desert warfare is carried out by raiding parties, varying in strength from 20 or 30 to 1000 or more according to the object in view, travelling light and unencumbered by flocks, tents, or women-folk. By long rapid marches the party reaches the enemy's pastures, where it roves by unfrequented wells, with scouts out miles ahead to bring early word either of danger or of possible loot. The adventure may culminate in a lightning raid on an unguarded herd of camel, or, better still, the skilful theft by night of a blood mare. Then may follow a running fight of 50 miles, each side trying by skilful manœuvre to draw the other into an ambuscade. There is a prodigious amount of firing of rifles from the saddle, there is galloping and wheeling to and fro of white-clad tribesmen for hours in the limitless desert, wild excitement of man and horse, and shrill cries of defiance. And then the triumphant return home, whether the warriors come laden with material spoils of victory or boasting merely the moral superiority of a sojourn with impunity in the enemy's country. Seats of honour are placed for the warriors ; young lads and women eagerly proffer the cups of cardamoms-flavoured coffee and sweet tea, which are followed by a feast to celebrate the victory ; while the tribal minstrel in extempore verses extols the glories of the fray. True, battle casualties are rare, for desert fighting, except when some prophet has inspired the Arabs with religious zeal for the extermination of unbelievers, has seldom been *à outrance*.

The Jezireh itself is intersected by a single range of hills, the Sinjar, running from Mosul directly westwards to the vicinity of the Euphrates. The Sinjar range on the north, the Tigris on the east, and the Euphrates on the west form an approximately equilateral triangle with sides 250 miles long, the apex being at Baghdad, where the two rivers converge to within 30 miles of each other. Roughly speaking, our route in 1918 was from the apex—Baghdad—to near the middle of the northern side of the triangle—the Sinjar range. This line of hills is inhabited by Yezidis, or devil-worshippers, who are described by travellers such as Layard and Sykes as a wild inhospitable tribe of warlike mountaineers, feared and avoided by their Arab neighbours.

During the War the Turkish line of supply from railhead at Nisibin to Mosul and farther south was a desert road that ran about 40 miles north of Sinjar, and convoys of arms and other supplies of a nature highly prized by the Yezidis were continually passing along this road. The Yezidi, confident in the safety of his mountain retreat, made raids from time to time on the convoys. At last, after a particularly daring and successful little excursion in the spring of 1918, in the course of which three German motor lorries were held up and looted of their entire contents, the Turks were goaded into action, and a punitive expedition, including a battery of field artillery, was despatched across the desert to deal with the delinquents. The Turks seized a gap in the foot-hills and opened fire with their guns on the Yezidis congregated to repel an assault on the steep sides of the main range. The tribesmen, who had had no previous experience of artillery, were completely taken

by surprise and suffered heavy casualties. They came to terms with the Turks, who imposed a fine of a large proportion of the coming fruit and cereal harvests. To ensure the payment of this indemnity, Turkish garrisons were left in the Sinjar villages to await the harvest.

The Yezidis, cowed by this demonstration of the Turks' strength, and fearing that, when his other preoccupations allowed, he might devote himself seriously to their extermination, after the manner of his dealings with the Armenians, now bethought themselves of appealing to the British for help. One of their principal men was chosen as emissary, and he, disguising himself as a Budoo and bribing an Arab to guide him, reached Baghdad, and laid the case of his tribe before the British authorities. What view the latter took I do not know, but even had they thought it worth while to interfere, it would have been impossible to send even the most mobile British or Indian force through the 250 miles of hostile desert in the height of the hot weather. On the other hand, one could not help thinking at the time that in the cold weather it might be feasible to send a mobile force—say, a camel corps—to base itself at the Sinjar, and with the assistance of the Yezidis, who can muster some 5000 rifles (of sorts), to harry the Turkish line of convoy on a large scale. However, the Armistice came at the beginning of the next cold weather, and I do not know whether anything of the sort was contemplated.

At any rate, there was no reason for turning a cold shoulder on these would-be allies, and H. was directed to accompany the Yezidi emissary back to the Sinjar and to report on the disposition of the tribesmen, their strength and resources, the practicability of troops of various arms reaching Sinjar by the desert route, and generally to elucidate in some small measure the nature of the southern Jezireh country portrayed in unrelieved white on the map.

Meanwhile the Yezidi envoy, who stated that he was the high priest of the Yezidi religious cult, was given a royal time in Baghdad. He was taken for joy rides in motor-cars, launches, and aeroplanes, and allowed to choose in the Ordnance depot and the bazaar whatever presents he wanted to take home to his friends. He was quick to grasp the situation, and showed no backwardness in making his demands. At our first meeting he asked me for presents of a wrist-watch and a pair of English boots. He developed an unpriestly taste for iced whisky and water, and dispensed free drinks (at Government expense) to all and sundry whom he met in the bazaar. He had asked for an English doctor to accompany H. and himself to the Sinjar and treat the sick of his people; and to this chance I owed my participation in the expedition.

A section of the Shammar tribe was persuaded, for a consideration, to undertake the attempt to convey us to Sinjar and back. The Shammar are Bedawin of the Bedawin; that is to say, they refuse to sully their hands with honest toil, and they earn their bread chiefly by highway robbery and blackmail. Their live stock consists of horses and camels only, for sheep and cattle savour too much of the ignobly sedentary agriculturist.

A few busy days were spent in preparation for the trip, and this was carried out as quietly as possible, as we naturally did not wish to advertise our project. Then H., Salāmah (the Yezidi envoy), and I ran out in Ford cars with our equipment to a military post north of Baghdad, where we were within a few miles of the encampment of the tribe which was furnishing the raiding party.

Next day we called on the Sheikh, with whom H. wished to make the final arrangements for the trip. The Sheikh, a big stout man past his prime, welcomed us heartily enough and led us into his tent, where rugs and cushions were placed for us to sit on. Desultory conversation on commonplace topics followed as a matter of course, and was persisted in, notwithstanding H.'s efforts to get to business. At last the Sheikh explained by nods and winks that a strange Arab who had arrived that day was in the tent, and that, as no one knew his name or business, private matters could not be discussed in his presence. On the other hand, it would have been unheard of discourtesy for the Sheikh either to have requested this guest to leave the tent or to question him about himself. Owing to their complex blood-feuds, an Arab does not know many of his feud enemies by sight. A Budoo, therefore, entering a strange tribe does not usually give his name for fear that in so doing he reveal his identity to some one present whose duty and pleasure it would be to kill him. His hosts, all Arabs, understand his reticence, and never question a stranger about his business.

There is no more important or interesting Bedawin trait than that of the obligations of the host to his guest. For a Budoo to allow any harm to come to one who has eaten his salt would be a disgrace, not only to the individual and his family but to the whole tribe, which could never be wiped out. The most deadly insult that can be offered an Arab is to accuse him of having broken this law. Many stories relate how a tribe has become involved in war with powerful enemies and has been well-nigh exterminated in defence of a stranger guest. A lax observance of the law in a tribe is a sure sign of decay and approaching dissolution. The custom is probably of great antiquity, and is in reality a necessary safeguard for the Budoo, for in every man's life in the desert there are bound to be occasions when his life will depend on his being able to claim the protection accorded to the stranger guest.

While we waited, the coffee of ceremony was passed round. Arab coffee is made very strong and is served a teaspoonful at a time. One usually has one's cup filled two or three times, drinks off the coffee quickly and then hands back one's cup to be presented to the next guest, as crockery is generally rather limited. While we talked, all and sundry crushed into the tent and squatted round us, listening to and joining in the conversation. Presently a meal was served, an enormous platter of rice with chunks of goatflesh stuck into it. The three guests and the Sheikh dined first, helping themselves to the steaming mess with their fingers. The Sheikh proved himself a good trencherman, balling the rice into a huge bolus in his hand and shooting it into his mouth. In excess of hospitality he persisted in picking out succulent chunks of meat and forcing them into our hands. Etiquette demands that meals

shall be eaten quickly, as, after the guests have fed, the platter is passed on to the retainers, who want the food before it gets cold. While we fed, the younger men, excited by the forthcoming foray, began loosing off their rifles among the tents, and it required some effort to eat unconcernedly while bullets zipped round us in all directions.

As the unknown guest showed no signs of moving, we rose to leave, and, under pretence of seeing us off, the Sheikh discussed with H. the final arrangements for the journey. The Sheikh was chiefly concerned about the money reward he was to get for the job, for our old friend was pretty hard up at the time. In the good old days before the British came, he had derived a considerable revenue from the more settled Arabs of the river-side, who purchased immunity from pillage by paying him an informal tax in kind—wheat, rice, sheep, and vegetables. The Sheikh who cannot keep his tribe well fed, and maintain a generous board for all comers, soon finds that his following diminishes, and he ceases to be a power in the land. However, H.'s proposals so well satisfied our friend that he declared that two of his sons should accompany us to guarantee our safety.

A rendezvous at an old bridge some ten miles away was fixed for sunset the following day, with the idea of pushing well out into the unfrequented desert during the hours of darkness. News travels with uncanny rapidity among the Arabs, and we particularly wanted to prevent news of our departure reaching hostile tribes through whose country we would have to pass. We subsequently learnt that the Turks had received fairly definite word of our project before we left Baghdad, and had offered a reward to the Arabs in their pay for our seizure. Thanks, however, to the sound judgment and desert knowledge of our guides, we never fell in with any one who could harm us.

Next day, provisions for the journey were sent out to the Arabs, so that we could divide them up into camel loads. For the horses we took a small ration of barley; for the men and ourselves flour, rice, and dried dates. It was essential that we should travel light, so the only luxuries we took were a little coffee, tea, and sugar, six tins of bully-beef, and a tin of cerebos salt. The bully-beef was a sort of emergency ration, as we were not sure whether we should keep fit for the long marches on a purely vegetarian diet. The salt was an inspiration of H.'s, who had had previous acquaintance with savourless Arab cooking.

It was considered essential by the Shammar that H. and I should disguise ourselves as Arabs, because the presence of two Europeans reported by any passer-by in the desert would certainly arouse unwelcome attention. We need not anticipate a close inspection since we should have to show a clean pair of heels to any large party of Arabs we sighted, while smaller bodies would similarly give *us* a wide berth. We provided ourselves with Arab clothing of the kind worn by the poorer Bedawin, and Arab saddlery, and spent the morning trying on the former and accustoming ourselves to riding on the hard high-peaked saddles.

As the afternoon drew on, we sent off our disguise and saddlery to the rendezvous by car, and, to avoid comment, rode there from the camp in uniform. We reached the bridge at 8 o'clock, changed saddles and kit, and sent the car away. Abdullah, the Sheikh's son, who was to command our party, turned up punctually; but, alas, only two or three of his thirty men were with him. Here was our first experience of the Arab's incapacity for sticking to a plan. In this they remind one irresistibly of the monkey folk in Kipling's *Jungle Book*. After long and wearisome debate, they had decided that the start should take place in the evening for the reason above given. But the road to the bridge passing near a village, the men decided, in spite of Abdullah's remonstrances, to go in and buy some melons. As they sat gorging

FIG. 2. Arabs of escort.

themselves, they made up their minds to sleep in the village and postpone their departure till morning, and this they explained to the messenger whom Abdullah sent to fetch them. There was nothing for it but to sleep where we were and start next day.

We rose with the sun, packed up and started off westwards soon after six, with twenty out of our thirty men. The latest arrivals could give no news of the remainder of the party, but thought that they had "lost the way." This was my first experience of riding in an Arab saddle, which is very narrow from pommel to cantle and uncomfortable for the beginner. Slung across the saddle was a pair of saddle-bags containing all one's personal kit for the journey. This consisted in my case of a spare shirt and two pairs of socks, a cake of soap, a toothbrush, a camera and films, note-books, a small barometer, a thermometer, and

a large enamelled iron mug. The last proved invaluable, as it turned out to be the only drinking utensil in the caravan large enough to give one a satisfying drink, and was in great demand at every halting-place.

Our first stage was a short one. After an hour's ride we came to a rather elaborately built tomb, and near it a deep well, by which we halted to water the animals and to breakfast on boiled rice and dates, followed by melon and coffee. This first day's march was slow and interrupted by many halts, as Abdullah was anxious to give the missing members of the party a chance of picking us up.

At the tomb we turned northwards, and after two hours reached the remains of the Median Wall, which once stretched from the Tigris to the Euphrates, and protected the kingdom of Babylonia from invasion from the north. The "ten thousand" Greeks in their retreat from the battlefield of Cunaxa encountered this wall, which is described by Xenophon as being "built of burnt bricks laid in bitumen; it was twenty feet in thickness and a hundred in height, and the length of it was said to be twenty parasangs"—about fifty miles.

All that remains of it now is a grass-grown mound, twelve to fifteen feet high, stretching in a straight line east and west as far as the eye can see.

Near the wall was a water-hole, to which the thirsty horses crowded as we dismounted. The water tasted slightly of sulphates, but was quite potable. After being watered, the animals were let loose to graze and we had a short sleep in the shade of some bushes. The Arabs meanwhile sat down to one of their interminable councils of war. After a couple of hours' talk, Abdullah came over and told us that they would not risk pushing out into the desert, where hostile Arabs might be met, until our party was reinforced by the ten men who had not yet joined us. They had therefore sent back a man to find the others, and we should have to halt where we were till next morning.

We made up our minds for this further delay, but at 5 P.M. the missing men turned up, very cheery and not one whit ashamed of themselves. Our plans were now altered, and we arranged to put in an evening march. As there was a good deal of dry camel dung near the well, we had fuel enough to bake chupattis for supper. The men had shot some sand-grouse with their rifles, and the birds torn into fragments were roasted in the hot ashes, so that we fed sumptuously.

We marched off at seven o'clock, but half an hour later, as the sun began to dip behind the horizon, we halted while the Arabs dismounted, and, led by Abdullah, joined in the evening prayer. Mohammed's injunctions regarding daily prayer are not strictly obeyed by the Bedawin, who take their religion as light-heartedly as they do everything in life. The prayer on this occasion invoked good fortune on the enterprise. The formality was not repeated all the time we were with the party.

Abdullah and Mijwell, the Sheikh's sons, were men of about thirty years of age, of middle height, with handsome sun-tanned faces of Semitic type; their long black hair was worn in neat plaits, which hung forward over their shoulders almost to their waists. Abdullah was not

a "strong" chief, and we soon found that he had to depend—not always successfully—on cajolery to persuade his wild following to carry out his wishes.

At a signal from him our little party moved forward again with hardly a sound through the star-lit night. The spectacle was beautiful and impressive. In the subdued light, the camels seemed to lose their ungainliness, and, silhouetted against the sky with their riders swaying gently to and fro, they appeared to glide ghost-like over the soft carpet of the desert.

For three hours we moved on, enjoying the cool, fresh night air after the heat of the day. About 10 P.M. we halted, and the camels were quickly off-loaded: the Sheikh spread a square of carpet for us on the ground. Mindful of some petty thefts of our property that had occurred the night before, we collected all our horse-gear and saddle-bags into a pillow for our heads, strapped our rifles to our wrists, stretched ourselves out on the carpet, and were soon fast asleep.

At half-past four we were awakened by Abdullah. We had no dressing to do, and within five minutes were on our camels, heading northwards. After an hour and a half we reached a water-hole, but the water proved to be unfit even for the animals. While we sat down and ate a dish of rice and dates cooked in oil, some of the men rode the ponies over to another well a mile away and watered them. Then started the main march of the day, lasting till six o'clock in the evening, with a short halt about mid-day at a well, where we watered camels and horses and filled our water-skins afresh. One's thirst was almost unquenchable. At every halt we drank several pints of water, and on the march had recourse to our water-skins at least once an hour. To-day's mid-day halt was our first experience of one of the most unpleasant concomitants of desert travelling in this country—the presence of a good deal of Epsom salts in the well-water. From this time onwards, most of the party, animals as well as men, suffered continuously from the effects of the water. An afternoon march like this one was very monotonous, and seldom lightened by incident of any kind. The party straggled out over half a mile of country. The shade temperature was 120° Fahrenheit at two o'clock that afternoon. The sun beat down on our backs, and conversation soon ceased. We plodded on in silence, each man buried in his own thoughts and ticking off the hours to the blessed cool of evening.

We had in all twenty camels and ten horses. Camel-men and horsemen have different parts to play in a raiding party. The camels carry the water and food of the whole party. On the march, those of the horsemen who are not acting as scouts clamber up on to the camels for comfort, squatting behind the camel-drivers and leading their horses by a head-rope. In a fight the horsemen engage the enemy and seek by skilful manœuvring either to lure the enemy's horsemen into an ambush formed by the slow-moving camel party, or else to screen the latter's retreat to some distant well, where the horsemen will join them a day or two later if they manage to shake off a numerically stronger enemy.

The exact composition of the two parties—camel-men and horsemen—is a matter of anxious debate when a raiding party is being formed. It would never do to have one group of families or one section only of a tribe represented among the horsemen, for, in the event of a sudden alarm, they might gallop off and leave the camel-men in the lurch. The matter is one that requires careful adjustment. Where possible, members of the same families—brother and brother, or father and son, or two blood-brothers—ride one a horse and the other a camel.

The tie of blood-brotherhood is a peculiar Bedawin relationship. An Arab often chooses his "brother" from a different tribe, and this procedure has the advantage that if he fell into the hands of his "redif's" tribe, he will be protected by the latter's family. The two men are inseparable; they live in the same tent, are allowed to see each other's wives, and share the same camel on expeditions.

Abdullah's brother, Mijwell, and one or two of the Arabs remained sufficiently alert to get a few shots at sand-grouse (sitting on their nests!) with rifles. The ground was bare of grass or bush, and water was too far distant to reach before the evening meal; so we halted in the open desert at six o'clock for food. The ponies were given a drink from the big water-skins, a pair of which was carried by each camel; but the poor camels had always to wait till we reached water before they could slake their thirst. Some of the men had found some dried camel dung on the march—a great prize—so we had fuel enough to bake chupattis, to take the place of the insipid mess of rice which we already loathed. Meanwhile the sand-grouse were plucked and dismembered, and the morsels clapped on the pile of burning dung, turned over once, and then handed to us to gnaw. We soon gave up using knife and fork for our food, but a spoon was useful in dealing with rice. We never mastered the Arab accomplishment of squeezing a handful into a ball and flipping it into our mouths, and in order to secure our share of the dish we were dependent on the help of our spoons till the end of the trip.

After a three hours' halt that evening, we pushed off at 9 P.M., but camped for the night at half-past ten, as our scouts reported that other Bedawin were near the water five miles ahead.

The day just described was typical of the marching programme of the Arab when big distances have to be covered. The party starts before dawn, and does a cool morning march of five hours or so. Then comes a two hours' halt for food, followed by a march of about seven or eight hours to the halt about sunset for the evening meal. After that comes either a short march of two or three hours to bivouac, or else an all-night march to a halt at dawn. The two halts for meals are, if possible, by a water-hole. If good water is encountered in the course of the march, a short halt is made to water the animals. The bivouac for the night is usually chosen away from a water-hole, as near water there is a risk of surprise by a hostile party making for the well.

Next day as usual we started half an hour before sunrise and reached the well, which our Arabs told us was on the desert route from Tekrit to Hit. The water was scanty, black, and sulphurous, but our

standard of potability had fallen far in three days, and we were glad to drink it. As we sat breakfasting on chupatti and one of our precious tins of bully-beef, the Sheikh told us that we should have an all-day halt followed by a night march to take us through a tract frequented by hostile Arabs. An hour later, however, the escort had talked themselves round to a different plan, and we started off once more. The grass here was long but scorched and yellow; for several miles on this day's march it had been burnt by a recent desert fire. At two o'clock we reached two pools of bad water where we watered the camels and ponies, and had a meal which was to last us till nine next morning. During the afternoon march the Arabs kept well closed up and showed signs of being "nervy." A report of Turkish mounted patrols to the east of us brought in by a scout caused much excitement, and all our mounted men galloped off to investigate, presently to return convinced that it was a false alarm. In justice to the Arabs, who did not show up very well at such moments of stress, it must be allowed that capture by the Turks or their Bedawin allies would have entailed serious consequences for our escort. Whatever might happen to H. and myself in such an event, the Shammar would certainly have been hanged "pour encourager les autres."

We were pretty tired by sunset when we halted, but the Sheikh, in his anxiety to get quickly through unfriendly country, was inexorable, and after a halt of an hour we commenced a night march. About 1 A.M. we got into very rough country abounding in deep nullahs which our camels found difficulty in negotiating in the dark. So, after a long and angry debate, the Sheikh submitted with but ill grace to his followers' demand to bivouac for three hours. About a couple of hours after dawn next morning we came in sight of the Wady Tartar, a sluggish stream which rises in the Sinjar Hills and flows southwards parallel with the Tigris to end in a marsh north of Baghdad. The object of our night march had been to cross it in the dark, as it is the most frequented route in the desert for parties moving north or south. We approached it with great caution till our scouts some miles ahead signalled that all was clear.

The stream had dried up and stopped flowing a week or two before, but pools of brackish water were left along its course. It is on record that the Wady Tartar water has always been salt and barely drinkable. A cuneiform tablet, describing the campaigns of a certain Assyrian king, mentions that on one occasion his army bivouacked on the Tartar, and spent the night drawing water, "but for the king sweet water was carried from the Tigris." H. and I marked down one of the pools as our own, and within ten minutes were enjoying a very welcome cold bath. While dressing again we decided that we must celebrate the occasion by a real English breakfast, which consisted of bully-beef, some broken scraps of army biscuit I found in my saddle-bag, and sweet, milkless tea. By the time we had finished this, our first meal for eighteen hours, the fatigue of the night was forgotten. I then attended to some sick men among the Arabs, till at 10.45 A.M. came the usual sudden rush to depart.

As no strangers had been seen, we pushed northwards along the wady for a few miles till we came to a group of springs of the first sweet water we had tasted for some days. In the mud of a dried-up water-pool one of the Arabs found a live gazelle buried up to the neck. It was hauled out in triumph, the mud washed off and its throat cut, and the carcase loaded on a camel for consumption later.

The men suddenly expressed a wish to rest all day by this good water, but for once we interfered with their whim, and backed Abdullah in insisting on pushing on. The country we now passed through was slightly undulating, and we could not see more than half a mile in any direction. This necessitated the scouts keeping far out, and they managed to shoot two more gazelle, and to capture a stray camel. About five o'clock in the afternoon, the Arabs raised a shout and urged their camels to a trot, racing each other. We followed soberly to the spot where they had dismounted, and found that the excitement was due to the discovery of an accumulation of dry camel dung, ensuring fuel for a hot meal. A halt was made, and the captured camel killed and divided between the men, who quarrelled like wild beasts for their share. For our supper we had chupatti and camel flesh, which is coarse and insipid. At eight o'clock we pushed on for another two hours, and had a full six hours' sleep to make up for the shortage of the previous night.

We were now far behind the Turkish front line positions on the Tigris and Euphrates, and were in country within their sphere of influence. Our object was to push forward as rapidly as possible in order to reach the Sinjar before news of our movements reached the Turks there. Loaded camels, however, move at a pace of only two and a half miles an hour, so that to reach our destination early we had to do long marches daily. By averaging sixteen hours' marching a day throughout our trip, we covered about five hundred miles in twelve marching days.

Next afternoon we sighted our destination, the Sinjar Range, about a hundred miles to the north. In the region through which we were passing we met with sand-grouse in the largest numbers that I have ever seen. Near each water-hole were flocks of tens of thousands. Many of the wells were choked with dead locusts, which had left the burnt-up grass and crowded to the water. Their bodies formed a scum often six inches thick on the surface of the water, which naturally stank abominably. Not even the camels would touch water thus contaminated, and, if there was no other water-hole within reach, we had to bail the well dry and wait till it filled up again with drinkable water.

The Arab kit which we wore on the march consisted of the "zaboun," a long pinafore with sleeves, and over it the "abba." The latter is a loose, dark-coloured cloak with wide sleeves which the Budoo hooks up over his head on the march to mitigate the heat of the sun's rays. This we were able to draw over our solar topees, and give the appearance from a distance of being rather tall Arabs. For occasions when we were likely to be under the observation of strangers, we each carried for protection against the sun a very small pugri or turban, over which we could

wear the napkin-like "cheffia," the Arab head-dress. Under our flowing clothes we wore khaki shorts, and a shirt with badges of rank, which we hoped would save us from a spy's death in case of capture.

On the following night we were warned for another all-night march, as we must cross in the darkness a somewhat frequented desert route by which supplies of salt are conveyed to Mosul from a salt lake near the Euphrates. The effort to keep awake on these night marches was painful. Falling asleep meant a nasty drop from one's camel on to the hard ground. During the night we crossed over a salt "lake," composed of solid, white, glistening salt.

About midnight the escort again commenced grumbling at getting no rest, and, after an hour's angry discussion as we marched, the young Sheikh had to give in to his men, with whom he was furious. He pointed out in scorn that even H. and I, unaccustomed as we were to desert hardship, were content to sacrifice our sleep on an occasion like the present, but all in vain. We actually had to bivouac within half a mile or so of the lights of another Bedawin camp: but we marched before it was light in the morning, and saw no more of the strangers. During the night march and all next day, the camels were forced along at their best speed, with many spells of trotting which was most uncomfortable. The wretched camels were tired out, and required constant flogging along. The larger camels carried a load of about five hundredweight, including the rider. Mine, for instance, carried two big skins full of water, a sack of barley, and one of flour, and a pair of large saddle-bags, containing drugs and instruments, while odd articles of horse-gear, my rifle and ammunition, were slung from the saddle.

During the morning march we sighted one or more people in the distance, and halted for half an hour to let them get out of sight. At 10 A.M. we reached a water-hole and breakfasted off the remains of the camel flesh. After this, the Arabs took counsel as to how they were to get us to the Sinjar Hills, now seen distinctly away to our north. Salāmah explained that the hills themselves are so precipitous that no one lives on them. The villages are scattered at short intervals round the base of the range. He knew that the Turks had garrisons in several of these villages, but in which of them he did not know, except that the chief town, Beled Sinjar, was certainly occupied. The last forty miles of our journey to Sinjar would be through dead-level, waterless desert. Our cavalcade of camels would be certain to be observed, so it was necessary to take only a small party on ponies. We should have to travel quickly and light, as we should get no water for men or horses till we reached the hills. It was agreed that our best plan was to time our arrival at the foothills at sunset, so that we could pass the villages by dark and spend the night climbing the hills to a place of safety.

The Arabs decided that we could take the camels on for another ten miles by two short marches that evening and next morning. The party on horses would start at noon next day for Sinjar, the men assuring us that this arrangement would bring us to our destination at 7 P.M. The party was to consist of H., myself, Salāmah Beg, the Yezidi, Abdullah, and three of the latter's negro slaves. After our departure, the rest of

the party were to move about between some wells in the vicinity, and once a day were to send a man to a certain rendezvous to meet any messenger we might send.

That evening our usual few minutes' conversation between supper and bed developed into a long and heated argument between Salāmah, the Yezidi, and the Arabs. In Baghdad, Salāmah, to put it bluntly, had suffered from swelled head, and we had anticipated having some trouble with him on the journey. In this we were mistaken, for on trek he turned out to be a right tough old customer. Although an elderly man and inclined to corpulence, he stuck out the long marches with the best of us, and was always ready to exchange cheery badinage with the young Bedawin. On this evening, irritated by the Arabs' boasting at the evening meal, he carried his chaff beyond the bounds of friendly criticism, and made some very pointed remarks about Arabs in general and the greedy, vainglorious Shammar in particular. The discussion became so violent that H. had to intervene to make peace and persuade the disputants to retire to sleep.

During the march next morning an incident occurred which showed us how useless our men could be in an emergency. We suddenly sighted two mounted men riding away from us. Owing to the slackness of our scouts, our whole party came within half a mile of them before they were observed. Instead of pursuing them with every mounted man and killing or capturing them, the Sheikh insisted on our all dismounting in a hollow and holding a council of war. The men were greatly excited, shrieking at one another like demented beings. They excused their indecisive behaviour by saying that they were not sure that the strangers had seen us, and even if they pursued they might not capture both the men. After waiting for an hour and a half we resumed the march, and presently sighted and captured a lad on foot driving three donkeys. The donkeys were taken as loot, and the boy was kept prisoner by the Arabs until our return from Sinjar. It is to be feared that they tortured him in our absence, for he seemed quite to have lost his wits when we next saw him.

About 8 A.M. we reached the point where we should have to leave the camels. We re-packed our saddle-bags, H. taking presents for the chiefs—field-glasses, revolvers, electric torches, and the like—while I filled mine with drugs. We discarded our topees and put on the small pugris, wearing our cheffias or head-shawls over them as a more effective disguise. We started at noon, taking the captured donkeys, loaded with water, for the first ten miles. Then we halted, watered the horses, sent the donkeys back, and pushed forwards at a faster pace towards the hills in front of us.

The hot, thirsty march was an unforgettable experience. The ground was dead level, and without landmarks. Our pugris afforded inadequate protection from the July sun. The hills at sunset seemed almost as far off as ever. The ponies were dead beat, especially mine, which was developing strangles. Even when led at a walk for the last ten miles he kept falling down from fatigue every few hundred yards. We did not care to shoot and leave him, as any passer-by would know

by his hogged mane that he had belonged to a foreigner. At 11 P.M., after an eleven hours' march, we reached a well at the foot of the hills, and plunging our heads into horse buckets we slaked our thirst with the purest mountain spring water.

After watering the animals we pushed on, guided by Salāmah, whose foot was now on his native heath. We had to skirt a village in absolute silence. Some dogs barked at us, but none of the inhabitants was disturbed. The track soon became very steep and we had to lead our ponies up it. The surface was sometimes sloping rock, sometimes a slippery gravel, and progress was difficult and slow. By 3 A.M. we had climbed about 2000 feet, and both men and horses were dead beat. We lay down on the track and slept till half-past four, when Salāmah woke us and urged us to finish the climb before people were astir.

After climbing another thousand feet and just before we reached the summit, we met a young Yezidi driving a donkey. H. and I hastily covered our faces with our cheffias while Salāmah went forward and spoke with him in Kurdish, presently introducing himself to the lad, who kissed his hand and received a benediction. The Yezidi then left his donkey and led us over the crest to a well, situated a few hundred feet down the northern slope. He left us his breakfast of chupattis and cucumbers while he set off to a village to summon a few of Salāmah's friends. We tied up our horses and let them graze, while we established ourselves in a rocky recess, where we spent the next few days. It was an ideal retreat, for the cool northerly breeze blew in our faces and the rocks sheltered us from the sun.

The first arrivals at our eyrie were four delightful old men, who treated us with great respect and brought us an excellent breakfast of well-baked chupattis, fresh butter, and sour milk, after eating which I disgraced myself by falling fast asleep in front of our hosts. When I woke up, a large number of Yezidi elders had collected, including the chief of the Sinjar Yezidi, a venerable patriarch called Murad. While H. discussed the objects of his mission with them, I took photographs and distributed medicine to some sick people who had come to see me. Our rifles, revolvers, field-glasses, and especially our pith helmets, which we had carried on our saddles, interested the old men greatly. The elders of the tribe are distinguished by wearing a black instead of a white pugri on their heads, and a peculiar black shirt cut square at the neck. It is held among the Yezidis a capital offence to seize roughly and tear one of these shirts.

*(To be continued.)*

# LONDON AS AN IMPERIAL CAPITAL.[1]

By Vaughan Cornish, D.Sc.

## Part I.—The Normal Position of an Imperial Capital.

(1) In all the continents and throughout history, the capitals of sovereign States, as distinguished from provincial capitals on the one hand, and federal capitals on the other, have occupied a forward position towards the frontier of the principal neighbour. When by the expansion of the State, the capital ceased to be in this normal position, the Government transferred its seat to another city, or founded a new city. When, on the contrary, the advance of the frontiers was such as to leave the capital in the same relative position towards the strategic front and rear of the State, the Government did not change its seat. The sites of such enduring headquarters are great capitals in every sense, the seat of great political power, cities with a great population, and great centres of culture.

The advanced position of the seat of government towards the greatest neighbouring capital is the outstanding aspect of its political geography. But the site of both capitals had to conform to the position of natural resources and the relief of the land, so that in order to understand the geography of capitals we must examine their physical environment as well as their relation to political frontiers. Natural regions fall into three strategic classes, the Storehouse, Crossways, and Stronghold, and it is jointly by these characters and by relation to the political frontier that I shall describe the seats of Empire.

(2) Peking, the present capital of the most ancient of existing States, lies just within a great natural storehouse of food, the fertile plain of North China, at a site where narrow passes compel a crossing of the ways to Mongolia, Manchuria, and Korea. A stronghold against the north, where the passes lie, it is vulnerable on the south. The Mongols, forsaking their capital, Karakorum, in the distant stronghold of north-western Mongolia, built the Tartar city at Peking as their Imperial capital when proceeding from the conquest of northern to that of southern China, and placed a garrison in the district of Liao-Lang, beyond the north-eastern passes, in order to block the Manchurian Tartars. When the Chinese in their turn overcame the Mongols, they advanced their capital to Peking, where they could block the entrances from Manchuria and one of the entrances from Mongolia. Finally, when the Manchus conquered China, in the seventeenth century, they advanced their capital from Mukden to Peking. In doing so they placed their headquarters, as the Mongols did before them, outside the recruiting ground of the dominant community, and in an exposed position. All three governments, however, Mongol, Chinese, and Manchu, had the

[1] Based on an address on Capitals delivered to the Society in Edinburgh on Dec. 2, 1920. The paper appears also in *United Empire* for June 1921, and we are indebted to the Editors for kind permission to publish it here in a slightly condensed form.—Ed. *S.G.M.*

advantage of a storehouse and crossways near the principal frontier of the dominant community.

(3) The abandonment of a metropolitan stronghold is not uncommon in the history of dominant peoples. Thus, the Persians, under Darius, came forwards and downwards from the mountain byway of Fars and fixed their capital at Susa, in the neighbouring State of Elam. They stopped short of Babylon, although it was in a greater storehouse and at a more important crossways in the conquered lands, for to place the capital there would have been to straddle a neighbouring community, and that risk has been avoided by dominant peoples. But when the second Persian Empire was founded nearly seven centuries later, the country of Elam was thoroughly Persianised, so the capital was brought down to Ctesiphon, at the apex of the Babylonian delta. The reduced status of the third Persian Empire was due jointly to the ruin of Mesopotamia as a storehouse and the side-tracking by land and sea of the isthmus between the Persian Gulf and Caspian, which had been for so many centuries a crossways of international communication.

(4) An instructive contrast in capitals is provided by the transitory importance of Aix-la-Chapelle and the enduring greatness of Paris. Charlemagne instituted the former as his main headquarters, a forward position towards the Rhine crossings to the territory of the heathen Saxons, whose conquest in thirty-three laborious campaigns was his chief work. The complete incorporation of these converted kindred made the position of Aix-la-Chapelle politically obsolete, and its national use was soon restricted to the ceremonial of coronation. Paris has greater natural advantages, being situated in a district of exceptional fertility, which is also the crossways of far-reaching natural routes. The district includes both the confluence of the Seine with its chief tributaries and the northern bend of the Loire at Orleans. It was ruled by counts, who were in course of time elected kings of the West Franks. Their authority as elected kings was at first small outside the limits of their inherited lordship. The natural advantages of the royal domain helped them, however, to override all the feudatories, whereas in Germany the opposite process went on during the same centuries. The royal, or Parisian, domain had not the obstructive boundary of a Stronghold, but the country ruled from Paris expanded up to defensible frontiers. The city occupies a forward position within their circuit, standing in the angle between the frontier which faces Germany and the coast which faces Great Britain. Neither has the modern factor of coal-supply impaired the industrial advantages of the neighbourhood, for the chief coal-field of France is in the north-east. Consequently there has been no inducement to change the seat of French Government, and Paris has been the abiding city of political headquarters. Yet although the position of Paris in relation to its frontiers is typical of a great capital, it was commonly said in 1914 that it was unsuitably placed for a capital, which, it was assumed, should be either in a central or rearward site. But although the forward position entails inconveniences [1] during

[1] As well as advantages; *e.g.* in the confluence of railways which facilitates the concentration of the army in the forward area.

invasion it has been adopted in all ages by the Governments which have attained the rank of Great Powers.

(5) The requirements which place a sovereign capital in the forward area are illustrated when we contrast its administration with that of a provincial capital. The domestic affairs of a province would, we must suppose, be most conveniently conducted at the natural crossways of communication nearest to the centre of the district. The Government of a sovereign State is, however, charged with the conduct of foreign as well as home affairs. Hence, its most convenient seat is the natural crossways which provides the best junction of the home communications with the avenues which lead across the most important frontier. As every civilised country is engaged in foreign as well as home trade, the same conditions determine the site of the best commercial centre, so that one city is commonly suitable for the headquarters of the Government and the commercial community.

(6) The United States of America is the classical example of a Federal Empire. From 1790 to 1800 the national capital was Philadelphia, the chief city of the influential State of Pennsylvania. But the new Empire was constituted by the union, on equal terms, of thirteen States which retained most of their sovereign powers. It was thought that to seat the Federal Government in the capital, or the largest city, of a State would tend to give this State a predominance contrary to the principle of Federal equality. Accordingly, the President was instructed to find, on the River Potomac, the site for a new city which was to be the Federal capital. This is the origin of Washington, the Federal capital of the American Republic. The most significant connection established here is between the two climatic regions of the original States, which are strung out in a long line between the Atlantic and the Appalachian Mountains. In the States north of the Potomac, where the average temperature is that of Europe, men of British stock enjoy active exercise, but in the hotter climate south of the river they do not readily undertake field work. The result was that the Northern States had a white peasantry, the Southern, negro labour.

The situation of the Federal capital in relation to the continental frontier of the original Republic was essentially different from the normal position of a sovereign capital, for while it connected the Northern and Southern States, it did not connect the Republic with the British or Spanish territories in North America, or with the Indian lands. Since the foundation of Washington, the American Republic has expanded beyond the Appalachian Mountains across the fertile prairies and over the Rocky Mountains to the Pacific, thereby adding a territory about nine times as great as the original States. The new country has been largely peopled from Europe, and most of its ocean trade is trans-Atlantic. New York provides the best connection between Europe and the prairies, for it gives access to the Mohawk Gap, which is much the lowest pass leading westward through the mountains.

The principal development of North America outside the United States has been in Canada, and a low passage through the mountains

leads from the St. Lawrence to New York, so that this city is a junction between the United States and the greatest continental neighbour. Owing to the outpacing of the Southern by the Northern States during the Mechanical Age, New York is also a better junction of home communications than it was at the beginning of the nineteenth century. Thus the commercial capital of the Republic has grown up at a site typically suitable for its sovereign capital. Compared with New York Washington is relatively quite a small city, in spite of the advantages attaching to the seat of Government. The expansion of the Republic having been entirely westwards, it is no longer central but in a forward position. The fact that the Imperial affairs of the Republic are still conducted from Washington may appear at first sight anomalous. It is not the site which would now be chosen for a purely Federal capital, but its retention has been favoured by the consolidation which has accompanied the expansion of the United States.

## Part II.—The Position of London as Capital of the British Isles.

(7) When Claudius invaded Britain in A.D. 43 the harbours of Kent provided landing-places, but no good advanced base of operations, for the line of communication along the Downs was hemmed in on the west by the forest of the Weald and barred on the north by the tidal Thames and its estuary. An advanced base had therefore to be established across the Thames, in a position providing good access to the interior, which we call the Midlands. At Purfleet the river is too wide to bridge; between this place and the junction of the Lea the north bank is marshy, and the Lea itself interrupts direct communication with the Midlands. Near the junction of the Mole on the right bank of the Thames, a little above Kingston, the river bends away, and near Kingston the tide ceases. Consequently the Thames crossing to the advanced base had to be between the Lea and the Mole. There are hard banks at Kingston and Brentford, and each of these places is only eight miles farther than Southwark from the crossing of the Medway at Rochester. This insignificant lengthening of the line of communication would have saved the Romans five hundred feet in the span of their bridge, and many feet in the length of its piles, besides providing a better take-off than at Southwark. Neither was there wanting a healthy site for a station on the farther bank at the Brentford crossing. Why, then, was Southwark selected in face of its drawbacks? The reason was, undoubtedly, the strategic advantage given by the long north-and-south course of the tidal Lea, which, with the Thames, protects two sides of a large rectangle on the west of the former river. The Lea was required to facilitate the active operations of the garrison, not to provide a moat for masonry walls. The tidal river having a straight course, with the right bank raised and firm, the left low and flooded by the tide, is a perfect line of frontal and flank defence for the holders of the western side. The chief native capitals of the time were Colchester and St. Albans; the land between the Lea and the Middlesex Colne was the

way to St. Albans and the broad watershed leading to the Midlands (the Watling Street line), and the river was a protection on the Colchester flank. The high ground near St. Paul's being a much better site for a station than the slight and somewhat marshy eminence where Westminster Abbey stands, the permanent connection between the Continent and the interior of Britain was established at the north end of the Southwark crossing. This crossing-place was soon provided with a bridge, and the troops could then march to their camp from Kent. Their heavy stores could come by tide, but the bridge impeded the passage of sailing vessels above London. The military roads to the western counties south of the Thames were laid out from London, not from Southwark. The chief of these crossed to the right bank of the Thames at Staines, the take-off being protected by the once widespread marshes of the Colne distributaries. Thus Middlesex, marked out by the Lea and Colne, a district almost wholly within twenty miles of London, must closely correspond with the rounds of its garrison north of the Thames. The northern end of the Southwark, Westminster, Brentford, and Kingston crossings all lie in this county. With the spread of the Roman Conquest, London ceased to be in the forward area, and no legion was maintained there, but being the common junction of provincial and continental communications, it developed commercially. Consequently, when the legions were withdrawn, the population cannot have been depleted to nearly the same degree as that of the military station at York.

(8) The Saxon *Chronicle* tells of the retreat of the British to London in A.D. 457 before the invaders of Kent, but there is no record of a capitulation of London to the invaders, and it did not become the capital of the king of any Anglo-Saxon tribe, although other Roman cities were so used. Had London been deserted, the site, or another nearer the head of the tideway, would undoubtedly have been seized for the capital of an Anglo-Saxon kingdom. But, early in the eighth century, London is described by Bede as a busy city peopled by merchants of many nationalities. Its population, although composite in origin, was apparently united and local in outlook. There seems no reasonable doubt that London in the days of the Heptarchy was not only pre-eminent among the cities of Great Britain, but acted autonomously as commercial capital for the Southumbrian Kingdoms, which projected towards the Middlesex. The frequent mention of Saxon kings in connection with the affairs of London shows that relations were intimate, but the autonomous status of the city is indicated by the circumstance that the king so mentioned is generally he who exercised suzerainty outside his sovereignty. When this supremacy was attained by the kings of Wessex, whose royal residence and mausoleum was Winchester, the crowning place was moved forward to Kingston-upon-Thames, and the general council held at this connecting position between the community of which the king was lord and those where he was over-lord. Among the latter, London may, I think, be safely reckoned. The Danish wars brought about a closer union between the Londoners and the king. The Danes having established colonies in Yorkshire, the district of the

Five Boroughs in Mercia, and in East Anglia, attacked and occupied Essex, London, and Western Mercia. The border lands of Wessex, west of Middlesex, were Berkshire, Wiltshire, and Somerset. The invading Danish colonists fortified camps at Reading, in Berkshire, and Chippenham, in Wiltshire, and Alfred held a fortified position in the Somerset marshes. After the king had freed Wessex, London, and Western Mercia from the Danish colonists, he was attacked from oversea by the continental Danes, who established camps in Kent, and, sailing up the Lea, fortified a position there. So the chief offensive of the Danes in Alfred's time was on the front Somerset-Wilts-Berks-and-Middlesex in the first period, Kent-and-Middlesex in the second, Middlesex therefore being the objective common to both. Similarly in the wars of re-conquest, Middlesex was, as in Roman times, the base for advance upon the Eastern and Midland counties. The shipping of London was secured by a station of the Royal Navy at the tidal creek of the Tower of London. The Lea was for a time part of the treaty-frontier between Alfred and the Danes. Later, the fortification of Hertford on this river helped to drive a wedge forward between the Danish territory of the Five Boroughs and their East Anglian Kingdom, and later the Danish Kingdom of Yorkshire was subdued. An advanced royal headquarters was established at Westminster at the northern end of the Lambeth crossing and close to London, a palace being built there, and an Abbey in which the last Saxon king was buried. The position connected the two parts of the new kingdom of England, the hereditary dominions of Ecberght and the lands liberated by Alfred and his Saxon successors. In A.D. 973 the great conference held under the presidency of King Edgar seemed to foretell the founding of an advanced headquarters at Chester, near the northern end of the Watling Street watershed, a connecting position between the sovereignty of the kings of England and those of the smaller kingdoms of Great Britain. This, however, was at a time when inter-action with the Continent was less than usual.

(9) Under the Norman and Plantagenet kings the functions of a capital were increasingly concentrated on Westminster; coronations were held in the Abbey, and the principal royal residence was moved to the Thames crossing at Windsor, which is two-thirds of the way from Winchester to Westminster. The south-east coasts of England were now the principal frontier, and London is their chief junction with the main interior of England, which mostly slopes to the east, and is broadest in the south. Thus, at last, political harmonised with commercial geography, and London-town (the City, Borough, Westminster, and Suburbs) became one great political and commercial capital of England.

(10) The circumstance that Henry II. (1154-1189) adhered to an English city for the capital of his Empire ought not, however, to be passed without examination. His dominions across the Channel were about as large as those in the British Isles and as well cultivated; and the French monarchy was the principal neighbour of his Empire. Had his subjects on both sides of the Channel been of one nationality, the normal position for the Angevin capital would therefore have been in

the Gallic territory. If the Gallic subjects even had been of one community the imperial capital might have been on the Continent, but there was no unity among Normans, Bretons, and Gascons, so that the English were by far the largest community of the Empire. As England is bounded south and east by the coast there is no adjacent land beyond this frontier, and London, a junction of home communications well advanced towards the Calais corner of the Continent, was, accordingly, the normal site of G.H.Q.

(11) Henry II. was styled "King of England," but, later, John was styled "King of England and Lord of Ireland," and Henry VIII. "King of England and Ireland." Afterwards the Stuarts took the style of "King of Great Britain and Ireland," and James I., as such, made London his royal capital. By the Act of Union between England and Scotland in A.D. 1707, London became the parliamentary capital of Great Britain, and from 1801 to 1921 has been the parliamentary capital of the British Isles. The position was obviously typical, both in relation to foreign frontiers and home production, until the opening of the Mechanical Age. Since then, however, the principal seat of production has shifted to that part of Great Britain which is north-west of a line joining Bristol and Hull. It has been suggested that a capital in that part of the Island would be more convenient for the leaders of industry, but for the Government's conduct of foreign affairs London is certainly better placed. Had the capital been in the north of England in 1914, ministers and officials would have needed an advanced H.Q. in London, and the argument that a capital in the north would be comparatively safe from air raids will have less force in the next war than it had in the last.

## Part III.—The Position of London as G.H.Q. of the British Empire.

(12) Before we can realise the position of our Capital we have to define the position of an Empire which reaches nearly from pole to pole and on which the sun never sets, in relation to six great Powers ranged in a ring round the Northern hemisphere. As a matter of physical geography this might not be possible, but the restriction which war imposes on communication gives the Empire a definite position on the strategic map. The only ocean tracks which provide strategic communication between our territories are those which have British ports of call and are not too closely flanked by the ports of great foreign Powers. Consequently the strategic connection between Australasia and Canada is across the Indian and Atlantic, not the Pacific, Ocean. On the latter route we are poorly provided with ports of call, and the track is closely flanked midway by the naval station of Honolulu, which is, strategically speaking, a foreign port, for neither kinship nor common language relieves the government of the United States from the obligations imposed by international law. On the former we have an unrivalled chain of intermediate harbours on the way from Australasia to the British Isles, between which and Canada are no flanking ports of foreign

Powers. It follows, therefore, that on the strategic map the Empire stands astride the Indian and Atlantic Oceans, reaching not all round the world but only half-way round. None of the great foreign Powers has home ports on the Indian Ocean, all but Japan have their chief harbours within the Atlantic Basin. The chief front of the British Empire lies, therefore, on one or other side of the Atlantic, that is to say, either in Canada or the British Isles. The latter have a population six times as great as the former, and face across the Channel and North Sea four great Powers with a population more than twice as great as that of the United States. Moreover, the Old World being twice as large as the New will probably always be the more populous. Consequently the British Isles connect our oceanic Empire with its principal neighbour. They are also more central than Canada for inter-imperial communication. Consequently, both by resources and position the British Isles are typically conditioned for the site of the imperial capital. The home of three-quarters of the white population is politically the most important part of the Empire. Being close to the principal group of great Powers it is a suitable forward position for military headquarters. The home waters are not only the greatest focus of maritime routes but stand close to the radiant of the world's greatest railway system, and are, therefore, suited for the commercial headquarters of an oceanic empire. Finally, since the harbours of Great Britain are at the main approach to the communications of the Empire and those of Ireland at their main junction, the British Isles are the proper headquarters of the navy.

## THE BACKBONE OF AFRICA.[1]

Sir Alfred Sharpe has set forth the itineraries of his three journeys in Central Africa made during the years 1912-17. To these he has added certain reflections and a dissertation on the Tsetse Fly in its relation to big game. There is also a chapter on elephant-hunting, and one containing suggestions for reconstruction in Eastern Africa. The geographical interest centres in the trip up the Rusisi Valley and the volcanic area between Lakes Kivu and Edward, otherwise the routes followed are mainly well-known tracks, with digressions in search of elephants from time to time.

In the chapter on "Reconstruction in Eastern Africa" a sweeping proposal for administrative reform is put forward for consideration, viz. the amalgamation of Uganda, Kenya Colony, Tanganyika Territory, Nyasaland, Northern Rhodesia, and Zanzibar with Pemba and Mafia under a Governor-General, with headquarters at Zanzibar; the whole to be subdivided into three local administrations with Governors in charge

[1] *The Backbone of Africa.* By Sir Alfred Sharpe, K.C.M.G., C.B., formerly Governor of Nyasaland. Pp. 232. Illustrations and maps. London: H. F. and G. Wetherby, 1921. Price 16s.

—(1) Nyasaland and Northern Rhodesia, headquarters Zomba; (2) Uganda and Kenya Colony, headquarters Nairobi; and (3) Tanganyika Territory and Zanzibar and islands, headquarters Zanzibar; the united territory to be styled the "Colony of British East Africa." Given adequate inter-territorial communications, and the subsequent inclusion of Portuguese East Africa north of the Zambezi to make one homogeneous whole, there might be something to be said for the proposal. But communications are not adequate, nor are they likely to be for many years to come, and the delays which would inevitably follow when important matters had to be referred from the local Governments to the Governor-General would not make for good administration. Also Portugal is unlikely to part with its territories north of the Zambezi, for the present at any rate. The proposal is not original, but is adapted from the system of centralised government in force for many years in Portuguese East Africa, and all who have seen it in operation there know that it is a dismal failure. To apply this obsolete system of government to British territories in East Africa, at the best less than half developed, and with inadequate inter-territorial communications, would be fatal.

The further proposal for the re-grouping of British possessions north of the Zambezi and south of the Sudan into three sections also requires consideration:

*Group* 1. Nyasaland and Northern Rhodesia, with headquarters at Zomba. There is much to be said in favour of this, for the two territories are closely allied, both ethnically and geographically. The difficulty lies in the fact that the Chartered Company have expended considerable sums in the administration of Northern Rhodesia from the date of its inception, and would naturally expect to be compensated for their outlay. In view, however, of the fact that the revenue seldom meets the expenditure, it is probable the Chartered Company would be content to waive the question of refund, and to hand over the administration to the British Government as a going concern, subject to the retention by the Company of all lands other than native reserves and mineral rights therein, and compensation for buildings and public works. Whether the British Government would care to take over Northern Rhodesia on these terms is another matter, as considerable subsidies would be required for a number of years if adequate development is to be proceeded with.

*Group* 2. Uganda and Kenya Colony, with headquarters at Nairobi. Sir Alfred Sharpe urges that this amalgamation should take place without delay, but it is doubtful whether he has studied the matter. This is not a new proposal, but one which has received consideration many times during the past fifteen years. Kenya Colony is suitable for European settlement, and can carry a large white population; Uganda is not. Kenya Colony has scattered native communities whose tribal systems have been destroyed by the medal-hunting expeditions which marked its early adminis-

tration; Uganda has no less than four important native kingdoms, each with its representative legislature and judiciary. In Kenya agriculture is developed by the European; in Uganda by the native. Kenya is a white man's country; Uganda is essentially a black man's country, and native policy which would be equitable to the former would be quite unsuitable to the latter. These are but a few of the reasons which could be adduced in support of the existing system, which, as before stated, has been fully considered, and is the only one possible if justice is to be done to the subject races. All that was required was the unification of the customs systems to allow of inter-colonial and protectorate freedom of trade, and this has now been secured by the amalgamation of the Kenya and Uganda Customs Departments, of which Sir Alfred Sharpe does not appear aware. The Kenya and Uganda Railway administrations are being similarly unified.

*Group* 3. Tanganyika Territory and Zanzibar and islands, with headquarters at Zanzibar. As Tanganyika is a "mandate" territory, and not a British possession, discussion would appear premature. But it should be taken into consideration that, when the British East Africa Protectorate and Zanzibar were originally under an administration similar to that proposed, it was found to be unworkable; hence it is unlikely to prove a success if applied to Tanganyika Territory and Zanzibar.

Regarding Sir Alfred Sharpe's proposals for the rectification of the various boundaries there is much to be said in favour, but here again these are dependent on the ultimate fate of Tanganyika Territory, viz. whether it is to remain indefinitely a "mandate" territory or become a permanent British possession. An expert commission, consisting of qualified representatives from each of the colonies or protectorates affected, could however easily settle this.

Perhaps the most valuable suggestions in the book are those dealing with the Central Africa Railway policy of the future. The extension of the Uganda Railway to Uganda Proper is the first essential, and should be taken in hand without delay. The section from Kampala to Tonia, at the south end of Lake Albert, has already been surveyed, and, but for the War, would have been well on to completion, as funds for the purpose were provided under the Uganda Loans Ordinance, 1915. In so far as Kenya Colony and Uganda are concerned the mistake in policy which has been made in the past has been to allow the requirements for branch feeder lines in both territories to take precedence to the completion of the through line to Lake Albert *via* Kampala. This should be the main objective, and all further proposals for branch feeder lines to favoured districts should be held over until the parent line is built. Incidentally, it is of interest to note that the Uganda Railway is one of the few African railways which, from completion, had a greater down than up traffic, due to the enormous export of produce from the countries adjacent to Lake Victoria. The extension of the trunk line to Lake Albert has likewise enormous potentialities, as it will not only

open up the fertile plains of Western Uganda but will tap the Eastern Congo. This construction should be the first objective. The second should be the tapping of the Lake Kivu and Lake Edward areas, either as suggested by Sir Alfred Sharpe, or by the construction of a branch line of the Uganda Railway extension south-west from Kampala. In considering the alternative routes proposed it should be taken into account that Kenya Colony and Uganda are British possessions, and, as such, should have a prior claim to British capital; for so long as Tanganyika remains a "mandate" territory it would be folly to sink money in the development of a country which in the course of a few years may revert to Germany. What is not properly realised is that development in Tropical Africa involves capital expenditure by the Home Government, and will for many years to come, either in the form of grants-in-aid, subsidies, or loans: and the larger our African dependencies become the more our financial obligations increase. At present these obligations appear to be considered lightly, and with little thought to the future, but some day soon the British Government will have to consider seriously whether it would not be better to administer and develop properly the large African areas it already controls, rather than to continue indefinitely increasing its spheres of influence, and incidentally its financial obligations, by the assumption of responsibility for "mandate" territories which it cannot afford. At the present it is a case of pride *versus* common sense, and, so far, pride has prevailed, but whether it will indefinitely remains to be seen. Anyhow it is a poor look-out for the "mandate" territory concerned when it will have to be run by a foster parent country which cannot afford it.

In addition to the one supreme control referred to, one customs tariff, one land policy, and one native policy are advocated. Kenya and Uganda already have a common customs policy which provides for freedom of trade between the two countries. Tanganyika Territory might advantageously be included in this union, also Nyasaland. Financially there would be little change, as all four are exporters of raw produce, and have no manufactures to protect, but, as complete inter-territorial freedom of trade would remove a number of petty and annoying restrictions which at present exist, there is much to be said in its favour, and a general application could be easily made under the existing systems of administration.

A common land policy for all Central African territories was evolved and applied by the Colonial Office during the War. Unfortunately this was conceived on narrow lines, as it abolishes all further grants of freehold Crown Lands, and insists on leasehold only. The objections to this are fully set forth by Sir Alfred Sharpe. Under the scheme the only classes that have benefited have been the companies which secured the reversion of vast areas in Kenya and Nyasaland granted during the early days of occupation. These have found the value of their holdings more than trebled, as the settler in search of freehold must perforce buy from them. It is an iniquitous system, and should be dropped without delay. In any case, a common policy in such vast areas, with differing economic conditions, is not only doubtful

but dangerous to development, and it would be better to let each territory work out its own salvation without Colonial Office interference, subject to native rights being adequately safeguarded.

One native policy for all these areas is also doubtful. Native conditions in Kenya, Tanganyika, and Nyasaland are much the same; viz. there are few, if any, centralised native governments in these territories responsible for law and order, and the native headmen of the villages have but little authority over their people. In Uganda there are strong native governments, which rightly would resent interference. In any case it would be difficult, if not impossible, to evolve a common policy equitable to all the territories concerned, and here again it would be better to let each colony or protectorate work out its own salvation, as will be understood when it is taken into consideration that the destinies of some ten millions of natives of many and varying races, living under widely separated conditions, are involved.

From time to time reference is made by the author to the superiority of British to German administration of native races in Tropical Africa. But what are the facts? The beginnings of British administration in Nyasaland and Kenya centre about 1892, in Uganda 1895. German administration did not commence in East Africa until about 1895, by which time conditions in Nyasaland and Kenya were well advanced: both countries at the time being fortunate in having no critical neighbours in their adjoining territories to discuss the methods by which this state of affairs had been arrived at, as Portugal then confined her activities to the coast and the Zambezi valley. In Uganda, which also started about 1895, the establishment of settled government was comparatively easy owing to the local authorities having the good sense to utilise the centralised native governments which existed prior to British occupation. British law soon began to run both in Nyasaland and Kenya, but before it did run properly things were, to say the least, sometimes unpleasant. Conditions in German East Africa in the beginning were much the same as in Nyasaland and Kenya. The Germans, however, had the misfortune to have critical neighbours, already established, forgetful or unmindful of what had happened on much the same scale in their own territories; and the tales lost none in the telling, hence the tradition, carefully bolstered up by interested parties, that, as Germany's ways were not British ways, she could not administer native races. As a matter of fact, however, Germany did follow British methods, for she did what was done in both Nyasaland and Kenya, viz. break up the existing systems of tribal rule in the areas of least resistance and leave severely alone areas where organised opposition was likely to be encountered until such time as a favourable opportunity should arise for them to be adequately dealt with. Then, like Nyasaland and Kenya, she established administrative centres in the conquered areas, and set to work to build up settled native communities under district discipline. Except that, in the beginning, German District Officers were more often recruited from the military grade than the British, and that district discipline was more strictly enforced in consequence, the systems were practically identical. Later, the British

system of building up a colonial civil service recruited from civilian candidates was followed. On the outbreak of war German East Africa colonial administration differed very little from our own. In some points it was a little in advance, in others a little behind. It was mainly a question of policy, and each had something to learn from the other. Even during the strict military district rule of the earlier days there was no migration of any importance on the part of the natives affected to British territory, north or south, where it would have been an easy matter to cross the border, and this in itself is significant. From the first the natives in German East Africa recognised and respected their rulers as a whole, and, in their own way, were as loyal to them as British natives were to theirs. Had that not been so the German Colonial Forces could never have held out, as they did, for the duration of the War, against overwhelming odds. When peace was declared there was no jubilation on the part of the German native at coming under British rule—rather the reverse, in fact. German Central African Administration had much to be proud of and something to forget: British Central African Administration likewise has much to be proud of, also something to forget. The essentials of both were the same, and the assumption that British methods of dealing with native races in Tropical Africa were superior to those employed by the Germans will not bear examination.

The Mohammedan peril, so-called, has long been a fruitful theme for the returned missionary desirous of producing thrills, but it is somewhat startling to find an ex-African administrator supporting the theory that Islam is rapidly becoming dominant in Central Africa. The Arab, always Mohammedan, has traded on the East African littoral for hundreds of years, and has from the first carried his religion with him. Later he, with the Indian trader, also mainly Mohammedan, opened up pioneer establishments in the interior, and hence, from a religious point of view, had a long start of the Christian missionary; for the followers of Mohammed always proselytise wherever they go. But the bulk of the population is not Mohammedan; it is still pagan, and, of the remainder, apart from the coast areas, Christian adherents outnumber the Mohammedans everywhere. The fact is that Islam, as taught in Central Africa, is not fanatical, nor does it attempt propaganda on any scale comparable with Christian missions. Its teaching is a simple, healthy creed, inculcating abstinence and cleanliness, and is essentially law-abiding. It admits of polygamy, but lays down a moral code repugnant to racial suicide. It tolerates other religions, but leaves them severely alone. It is, on the whole, a mildly elevating moral force, which, reasonably and judiciously handled, is a power for good. During all the past years there has been no attempt at combination on the part of its scattered adherents in Central Africa, nor is there likely to be any so long as religious toleration exists in the territories affected. The main attractions to the native are its simplicity and the admission of polygamy, as the latter safeguards the welfare of the household during the husband's long absences; for, during pregnancy, it provides for rest to the mother, whose share of work in the gardens that supply the

food on which the household depends is then done by the other wives. Its chief disadvantage is the enforcement of circumcision, which is repugnant to the Bantu. Moreover, Mohammedanism is the creed of the yellow race, as compared with Christianity, the religion of the white, and, as to the native mind there is a big gulf between the two, it loses prestige accordingly. Throughout Central Africa the pagan's reasons for the adoption of Christianity or Mohammedanism are the same, viz. the desire for a higher life and, incidentally, the betterment of his social status, by becoming a member of a recognised creed. He does not desire to investigate theology, but to be given a few definite principles to abide by on which he can work. Each religion attracts its adherents, and each finds favour according to the local influences at work, the balance in the aggregate being in favour of Christianity. As a matter of fact, in so far as Central Africa is concerned, there is no Mohammedan peril, nor is there ever likely to be one so long as religious toleration is observed by the Governments concerned.

Sir Alfred Sharpe's pronouncement that there is little or no connection between the incidence of tsetse and big game in association, and that the extermination of big game would have no more effect on the existence of tsetse than the slaughter of domestic cattle would have on the extermination of common flies, may be comforting to the big game-hunter, but is open to question. As a matter of fact, every African administrator knows that big game protection and agricultural development are incompatible, though he may not admit it for personal reasons. The antelope, as an infection carrier, is negligible, for without exception he is a timid beast, and seeks sanctuary far afield as a country opens up. The buffalo, however, is another matter, for wherever he roams *nagana* follows; wherever he has been exterminated or permanently driven off, *nagana*, with its attendant carrier, *G. Morsitans*, invariably disappears. Southern Rhodesia and Portuguese East Africa south of the Zambezi have fully proved this, for large areas there, once pest-ridden and the haunt of buffalo, are now free from both fly and *nagana* where game has disappeared. Sir Alfred Sharpe is careful to refer to the country north of the Zambezi only, but all who have had administrative experience there know that the same applies, and that development and big game protection cannot march together; for not only is there always danger of *nagana*, but rinderpest follows in its train. In this connection the chief veterinary officer of Uganda, in his report on the recent epidemic of rinderpest there, which accounted for over 100,000 head of cattle in a few months, speaks in no uncertain manner (1920). Whilst on the subject of big game it is enlightening to turn to the chapter on "Elephant Hunting," which records Sir Alfred Sharpe's experiences during some two months spent in the Eastern Congo on his second trip. There is little interest in big game protection recorded there, for the narrative reeks of elephant slaughter, not in the interests of science, or for the protection of native crops, but for pure lust of ivory, the complacent recital of which, from any point of view except that of an ivory trader, is unpleasant reading.

H. R. Wallis.

# THE RESOURCES OF THE LOWER ST. LAWRENCE VALLEY.[1]

By Roderick Peattie, Assistant Professor of Geography, Ohio State University.

Fur.—Fur, which was historically of prime importance, is relegated to a minor position. It was for a time one of the chief motives for taking the white man into the interior—the hinterland. It formed, in colonial times, the sole economic link between Old and New France. It was the life of the colony. The Indian, led on by the avarice of the White, soon exploited the region in the immediate vicinity of the St. Lawrence. The great hinterland on each side was then drawn on. To-day these regions are still producing pelts, and in fact they are likely to for a long time—though in smaller and smaller amounts.

The great quantities of furs in the hinterland were, and are, the direct product of geographical conditions. Firstly, the numerous lakes and streams make the hinterland accessible. Had this peneplain been without these great waterways only the very edges of the Canadian Shield would have furnished peltries to the trade. Also these same lakes and streams, plus the climate, together with the accompanying flora, were elements which went to make the region a haunt for the fur-bearing animal. The lakes are the result of peneplanation plus the glacial erosion. The flora is supported in part by the water areas and the precipitation, and in part by the meagre soil and the still more meagre warmth. Thirdly, had this land been more hospitable to the Indian through a less rigorous climate and better soil, there would have previously been a more densely populated occupancy, and the number of animals would have suffered in consequence. That the region to-day still supports fur-bearing animals is because of these same factors [7].

The fur trade to-day, though of little relative importance, is not to be overlooked [8]. The city of Quebec is the collecting station for the pelts taken in the more accessible portions. Quebec Labrador has its own "factories" at the mouths of the great streams that drain the north land. An important factor in the fur trade of Saguenay County is the Indian population living, not only in the interior, but in two rather considerable Indian reservations near the coast.

Fisheries.—The fishing industry of the Lower St. Lawrence is older than the colonisation, approaching in age the ancient fisheries of Gaspé and Labrador begun by the Basque and Breton over four hundred years ago. When Cartier sailed through the Straits of Belle Isle in 1534, he noted that "there great fishing is done" [9]. Less than two years later the fishers had explored the estuary, fishing in its waters and trading along its shores [10]. The fisheries of the Atlantic coast were, however, much more favoured than those of the estuary. The greater abundance of fish, the larger ground for operation, the proximity to

[1] Continued from p. 116.

markets, together with the excellent harbours of the Labradorean coast, were to the disadvantage of the industry on the St. Lawrence. Also, it was not until 1683 that "inhabitants of Canada" were allowed equal privilege with the fishermen from France; previous to that period they had been subjected to paying duty on fish brought to the mother country.

One of the most interesting attempts to establish fishing on the shores of the estuary was by Sieur Riverin. He received a grant of the river and bay of Cap Chat, with six arpents of land on each side for hunting, fishing, and trading with the Indians[10]. Louis XIV., with his beneficent patronage, subsidised the project. The fishing consisted in part of taking the salmon and whales at the mouth of the St. Lawrence. In 1688 Riverin, in order to arouse enthusiasm, established himself at Matane, which was then a harbour. To-day only the smallest boats and barges can cross the bar. The twenty leagues about his station were described as swarming with fish. Fifty whales could be sighted at one time. The enterprise suffered many vicissitudes, and was kept alive only by artificial stimulus.

Various concessions were granted on the South Shore. Sieur de Peires in 1615 was given a frontage at Metis, including the Ile de Barnabé, for fishing the herring. A project was established at Kamouraska in 1701 for killing porpoise. It, again, had vicissitudes, and was kept afloat only by the aid of an annual subsidy of 400 livres. Many others were opened on the adjacent coasts. In 1716 the porpoise fisheries failed, owing to offshore winds and forest fires which drove the "small fry" from the shallows, and hence the porpoise who came there to feed on them. Fish were more plentiful along both shores than they are to-day, and yet no project with a base along the estuary was successful.

The Gaspé and Labrador shores have the direct advantage of facing the sea and of being adjacent to the Grand Banks. It was natural enough that they should prosper at the expense of the more inland fishing stations. Also fur trading and, later, agriculture had greater attractions in our regions than on the bleak coasts of the Atlantic. To this natural advantage the Gaspé had the added factor of the enterprise of the house of Robin—Charles Robin—of Jersey. In 1764 was founded the most remarkable fishing house in America. The personality of the leaders amounted to a domination of all employed until conditions assumed a despotic, though considerate, aspect, with a supervision which went further in its paternalism than did that of the Hudson Bay Company[11, 12]. This house has extended its influence until to-day, under the name of Charles Robin-Collas Company, Ltd., it controls the fisheries on both shores of the Gulf of St. Lawrence and even into the estuary[13].

During the early part of the nineteenth century much fish was received at Quebec for home consumption and for export. Most of this was caught in Gaspean waters and the exports included dry and green cod, panelled and smoked salmon, mackerel, green and smoked herring, codfish oil, whale oil, and cod sounds. The cod and salted

salmon were sent dried to the West Indies. The cod was divided into three classes, "Merchantable," "Madeira," and "West Indian," according to its condition. The "Merchantable" went to Spain or Brazil according to its condition. The herring which was poorly prepared for shipping was eaten at home. One serious damage to the commerce of fish was a phase of agriculture, manuring. Grave complaints were put before a committee of the Legislature in 1823 [10], that the herring and the capelin were used so extensively for fertiliser that there was a scarcity of bait for the cod fishing.

In addition to the fish from the Gaspean waters, a variety were taken in the early days from the estuary. In 1823 herring were abundant between Rivière Ouelle and Ile Verte, and there were also several fisheries in this region for porpoise, shad, salmon, and sturgeon. Below Ile Verte they fished for cod and salmon. There were apparently abundant fish all the way to Cap Chat. Before the committee of 1823 a certain Taché testified that he, with others, had caught among the islands of Kamouraska 1000 barrels of herring and 3000 to 4000 barrels of sardines each year, and estimated that the banks from Kamouraska to Trois Pistoles had a capacity of 20,000 barrels a year.

The North Shore, during this early period, had fisheries for salmon and porpoise at Ile aux Coudres, Baie St. Paul, La Malbaie, Tadoussac, Mille Vaches, and Godbout. The cod ran from Godbout eastward. Whale were taken from Ile aux Coudres eastward. On the South Shore the cod came as far as Metis, the herring to Kamouraska, and the porpoise played from Rivière Ouelle to Rivière de Loup [10].

The situation to-day is this: although the fish in the estuary have been somewhat depleted, the gulf affords an abundance of fish which may be taken by any ships putting out of estuary ports. A natural difficulty lies, however, in the lack of good ports. The configuration of the coastline is not such as breeds sailors. Contrary to what one might expect, much of the fish which to-day is sold in the markets as far east as Toronto and Montreal is from the Pacific, 3000 miles away. Such fish as do come to these markets from the Atlantic are shipped by rail from Nova Scotia because the traffic on the river is not equipped with refrigerating systems. There were in 1918 but two ships bringing in fish from Quebec Labrador. The only steam trawlers are those netting salmon in the months of July and August. The rest of the fishing is by hand-lines from small boats after the ancient primitive fashion, and after the fish is caught the proper means of getting it to market is lacking. Cod, halibut, and sea-trout are plentiful in the outer waters. The condition is now being remedied, and large refrigerating steamers are opening up this commerce. These boats will rush their cargo to Rimouski Wharf, where the inter-colonial railway will carry it quickly to the markets. The fish caught to-day, in order of importance, are cod, herring, mackerel, lobster, capelin, and salmon.

The inland and sporting fisheries assume large proportions; for not only do they furnish occasional food for the table of the habitant, the lumberman, and the Indian, but sport for a great number of sportsmen, not a few of whom come from the United States. There is little oppor-

tunity to gauge the amount of fish caught in this way—but considering the salmon alone, we find that whereas $8000 worth of salmon is netted annually, $100,000 worth is caught in the streams [13]. Of the fish taken in 1916-1917, dore held the place of greatest importance, while in order followed eels, white fish, cat fish, and trout [3]. Salmon were at one time found in all the tributaries of the St. Lawrence. To-day, as in the Rivière de Ste. Anne de Beaupré, excessive fishing, pollution of waters, and the stringing of nets opposite the mouths of the streams has reduced their numbers. The waters flowing into the Saguenay are all leased for salmon fishing and are all well protected. The Bergeronnes, Escoumains, Portneuf, and Sault au Cochon formerly contained salmon, but to-day are sadly depleted. Many rivers, like the Outardes and Manicouagan, have salmon up as far as their falls. Godbout, because of careful preservation, is fairly teeming with salmon. A story of one of the rivers to the east of Godbout is that one angler, in a month, killed 162 salmon, having a total weight of 1639 pounds [13]. In the Gaspé, individual salmon pools have sold as high as $30,000. The South Shore also has its fishing, and every station is a point of debarkation from the train of numerous sportsmen who go back five to thirty miles into the woods to fish some stream or lake. Speckled trout, sturgeon, striped bass, lake trout, brook trout, pickerel, and white fish, furnish a variety of sport. The main commercial advantage which this affords the localities is the money which the clubs spend in the region. Speaking for the whole province, the annual value of fish taken, amounting to $2,000,000, furnishes over $10,000 for fishing licences, $50,000 for leases, while many of the clubs spend from $10,000 to $50,000 annually. The Laurentian Club of the Lake St. John region spent $47,743 in 1910, and employed thirty-five servants in its camps and forty-five guides in its territory [13].

Mineral Possibilities.—The probability of large and important mineral deposits in the counties under consideration is high. The region has been little prospected and most of the exploration has been confined to the stream banks. Geologically, this portion of the Laurentian plateau is as probable a place for minerals of importance as the other portions. There are here large bodies of anorthosite rock into which are intruded large masses of granitoid rock. This relation of granite and calcareous rocks is typical of Laurentian ore regions. For example, in Ontario, where granite masses are intruded into the Hastings-Grenville series, there is gold [13]. Platinum, cobalt, nickel, and copper are associated in the extraordinary Cobalt District. Silver, lead, zinc, sulphur, arsenic, graphite, corundum, apatite, feldspar, and talc are also associated with geological conditions in neighbouring Ontario which are comparable with those which we find in Quebec. Within the Province of Quebec, but to the west of the Lower Valley, mica and iron ore occur in the Laurentian rocks, and are mined with profit. Both of these give definite promise of development in Charlevoix and Saguenay Counties. Of minor importance necessarily, but yet not to be overlooked, are indications of important deposits of labradorite, tourmaline, idocrase, apatite, zircon, and especially garnet [14].

The latent possibilities of the Appalachian region are no less promising. The strata are early Palæozoic beds deformed into the familiar Appalachian structure. The geological conditions of the auriferous schists of Nova Scotia and the "Eastern Townships" suggest mineral possibilities. The "Eastern Townships" lying adjacent to our region on the south-west, have rich chalcopyrite and pyrite deposits and are the source of most of the chromite ore used in the United States. In the same geological province are found manganese, tungsten, iron, antimony, barium, asbestos, and lead [14].

The lack of mineral development in the Lower St. Lawrence Valley is due either to the lack of minerals or the insufficient exploration.

The known iron resources in the Lower St. Lawrence Valley are found principally in two places, St. Urbain, on the Gouffre River, and at the mouth of the Portneuf and Bersiamis Rivers [15]. The St. Urbain deposits were discovered some time ago. In 1871 an English firm erected two blast furnaces here and built a tramway to the St. Lawrence, about eight miles distant. They also secured large wood properties for the production of charcoal, used in the furnaces, as well as limestone quarries for the suitable flux. Five hundred tons of excellent iron ore were produced at an expense, however, that prohibited further operations [16]. A new era is now opening up, as is evidenced by the fact that, in 1911, 3789 tons of ore were hauled to the river for shipment to the General Electric Works at Salem, Mass., for the manufacture of ferro-titanium products used in arc lights, and to the Titanium Alloy Company of Niagara Falls, New York, where it is used in the manufacture of special steels and ferro-titanium compounds.

The deposit consists of three extensive irregular masses of titaniferous iron and ilmenite. At the Central Electric Mine it has been ascertained that there are hundreds of thousands of tons of ore. Two miles north of St. Urbain on the Lac de L'Islet there are fine concentrations of titaniferous magnetite. Deposits similar to those of St. Urbain, though smaller, exist at Château Richer.

Another type of iron deposit exists at the mouths of the Portneuf and Bersiamis Rivers. These are fluvial deposits reworked by winds and waves, and derived originally from titaniferous deposits and anorthosite rocks situated inland. Deposits of a similar type exist in the dunes at the mouths of the Portneuf and Bersiamis Rivers. These unfortunately have no present economic value, the deposits not being in sufficient quantity and concentration.

There is but one other geological resource, always excluding soils, which has any present development worthy of the name. This is the clay [21] [22] [23]. The South Shore possesses a variety of estuarine and glacial clays, used in a modest way at some half-dozen points. At Rimouski, L'Islet, Montmagny, and St. Pierre du Sud, bricks and tiles are manufactured. At Trois Pistoles they make pottery as well as brick. Some of this brick is shipped away—much of it is used within a few miles of the pits. A rare example of shipment by water from South Shore towns is Montmagny, which ships its bricks by water as well as by rail.

Limestone is quarried locally for building stone. The Côte de Beaupré and Ile d'Orléans perhaps lead in this small industry. Peat is dug periodically in a number of places—as much for fertiliser as for fuel. Mica (phlogopite), of use as insulator material in electrical apparatus, and as non-conducting covers for steam pipes, gives promise at several places on the North Shore, and garnets in Charlevoix.

## References.


1. Chambers, E. D. T. "Forest Resources : Province of Quebec." *Canada and its Provinces*, by One Hundred Associates. Vol. xvi. Edinburgh edition. Toronto, 1914.
2. Denis, Leo G., and White, Arthur V. "Water Powers of Canada." Commission of Conservation. Ottawa, 1911.

2*a*. Rouillard, Eugene. "The White Coal. The Water Powers of Quebec." Quebec, 1906. Dist. by the Prov. Govt.

3. "Statistical Yearbook of the Province of Quebec." 1918, Bureau of Statistics, Quebec.
4. Langelier, J. C. "Les Arbres de la Prov. de Québec." Dept. of Lands and Forests, Prov. of Quebec. Quebec, 1908.

   See also, by the same author, "Richesse Forestière de la Prov. de Québec." Dept. of Interior, Forestry Branch. Ottawa, 1905.
5. Giroux, T. "List of Saw-Mills, etc." Dept. of Lands and Forests, Prov. of Quebec. Quebec, 1913.
6. Lewis, R. G., and Doucet, J. A. "Wood-working Industries of Quebec." Dept. of Interior, Forestry Branch. Bull. 63. Ottawa, 1918.
7. Wilson, A. W. G. "The Laurentian Peneplain." *Journ. of Geol.* Vol. ii., 1903, pp. 615-670.
8. Census of Canada for 1911. Ottawa. Vol. v.
9. Chambers, E. D. T. "The Fisheries of the Province of Quebec." Part 1. Dept. of Colonisation, Mines, and Fisheries, Prov. of Quebec. Quebec, 1912.
10. Winsor, Justin. "Narrative and Critical History of America." Boston and New York, 1896.
11. Clark, J. M. "Sketches of the Gaspé." Albany, 1908.
12. Clark, J. M. "The Heart of the Gaspé." N. Y., 1913.
13. Chambers, E. D. T. "The Fisheries of the Province of Quebec." *Canada and its Provinces*, by One Hundred Associates. Vol. xvi. Edinburgh edition. Toronto, 1914.
14. Young, G. A. "Descriptive Sketch of the Geology and Economic Minerals of Canada." *Geol. Sur.* Ottawa, 1909.
15. Dulieux, P. E. "Les Minerais de Fer de le Prov. de Québec." Dept. of Colonisation, Mines, and Fisheries, Prov. of Quebec. Quebec, 1915.
16. Adams, Frank D. "History of Mining in the Province of Quebec." *Canada and its Provinces*, by One Hundred Associates. Edinburgh edition. Toronto, 1914.
17. MacKenzie, Geo. B. "Magnetic Iron Sands of Natashkwan." *Can. Geol. Sur.* Ottawa, 1912.
18. "Le Sable Magnétique de la Côte Nord." *Bull. Soc. de Géogr. de Québec.* Vol. ix. 1915.
19. Rossi, A. L. "The Metallurgy of Titanium." *Trans. Amer. Inst. Min. Engrs.* Vol. xxxiii. 1903, p. 181.

20. Dresser, John A. "Part of the District of Lake St. John." *Can. Geol. Sur.*, Memoir 92. Ottawa, 1916.
21. Sauvalle, Marc. "Minéraux Industriels et Industries Minières du Canada." *Can. Geol. Sur.* Ottawa, 1913.
22. "Report on the Mining and Metallurgical Industries of Canada." *Can. Geol. Sur.* Ottawa, 1908.
23. Keele, J. "Preliminary Report on the Clay and Shale Deposits of the Province of Quebec." *Can. Geol. Sur.*, Memoir 64. Ottawa, 1915.

## THE DRIFT OF ECONOMIC GEOGRAPHY: A REVIEW.[1]

By Geo. G. Chisholm.

All science tends to become overburdened with facts. The tendency is almost irresistible. It was Huxley, I think, who defined science as organised knowledge. Knowledge, then, must be there as the basis, and for each science or branch of study the practical problem has to be solved of how much knowledge must be presupposed in order that it may be fruitfully handled in scientific exposition. The problem, it must be confessed, is of peculiar difficulty in geography, a branch of study of which many of its leading exponents refuse to venture on a definition. It is essentially a focussing subject, so much so that the present writer has gone so far as to contend[2] that there are no generalisations in geography that are not generalisations in something else.

Yet, difficult as the problem may be, all real students of geography must feel impelled to face it. That is the purpose of this admirable book, which is on every ground to be recommended as fulfilling its aim as well as that could be done within its limits. Dr. Brown, the author, has the necessary wide knowledge of the facts, the power of commanding the facts from broad points of view, and the gift of an exceedingly lucid style of exposition both in respect of orderly arrangement and clearness of statement. If we have not as yet a recognised definition of geography the present work will, it seems likely, do much towards enabling us to arrive at that desideratum.

That it is a desideratum may be inferred from several statements met with in the text. Take a very trifling illustration. On page 59 Dr. Brown tells us "the world distribution of pigs is based on economic rather than geographical controls." Now, though Dr. Brown gives us no definition of geography, he feels, and may be congratulated on feeling, the necessity for beginning his treatment of his special subject with a definition. "Economic geography," he states, "is that aspect of the subject which deals with the influence of the environment, inorganic and organic, on the economic activities of man." But that raises the question whether geographical influences have not to be taken into

[1] *The Principles of Economic Geography.* By R. N. Rudmose Brown, D.Sc., Lecturer on Geography in the University of Sheffield. London: Pitman and Son, 1920.

[2] See *Magazine*, vol. xxxii. (1916), p. 507.

account again and again, perhaps invariably, in estimating economic "controls." With reference to pigs in particular, one may ask whether there are no environmental influences, inorganic or organic, to be considered in explaining why pig-rearing is largely carried on in the sparsely peopled corn-belt of the United States as well as in the densely peopled parts of Germany inhabited by small peasant farmers. That such questions are relevant in geography in the view of Dr. Brown himself will be apparent from a later part of this review.

One thing at least is made clear by Dr. Brown's definition of his special subject. This is seen to be one of world-wide comprehensiveness not merely as regards the area over which the student's eye must range in order to select points worthy of close attention, but also as regards the variety of considerations that must be entertained in bestowing that attention. No one can study economic geography at the present day without perceiving the truth of the fact, as it is expressed by one prominent geographer, that "the nations are locked into a single world system." The whole structure of Dr. Brown's *Principles* shows how clearly that is recognised by him: and some of the occasional reflections in the volume reveal very clearly the far-reaching nature of the problems forced on the attention of the student of his subject. In an excellent little paragraph in the Introduction (p. xiii), the author tells us that "the function of geography is to explain and interpret. Later comes the application of its principles to the betterment of mankind." But, as we shall afterwards see, he does not leave us without indicating some of the difficult questions that arise when we make that application.

The mere headings of some of the chapters give indeed some indication of this. Besides chapters on the Physical Environment, the Influences of Climate, Vegetation, and Animal Life, Sources of Mechanical Power, etc., we have chapters on Labour, Race Transference, and Colonisation. All of these are treated with the same judgment. In some cases it is naturally more difficult than in others to give the facts in such a manner as to justify the term *Principles* in the title. It is so, for example, in the chapter on the Distribution of Minerals, and in those on Land Routes through the Continents. Minerals can be worked only where they happen to be, and little that is profitable can be said in a geographical text-book as to why they should be found in one place rather than another. But even in such chapters the aim of searching for principles is at least made manifest in the selection of facts in due accordance with their importance. Considering the origin of the volume we cannot be surprised that the information given under the head of minerals is exceptionally full. It should be noted here that, though the chapters on Land Routes have been singled out as among those inevitably made up for the most part of mere statements of fact, it would be difficult to offer a more concise and yet illuminating survey of principles affecting sea transport than that which is presented in the chapter on Trade Routes by Sea.

The chapter on Labour has been mentioned as one of those in which we are brought right up against problems of wide reach which the student of economic geography cannot ultimately evade if he would;

problems, it should be added, in which he is compelled to recognise that geographical conditions cannot be ignored as affecting economic controls. Under the head of a racial danger Dr. Brown points out (p. 102), that "when the best lands are occupied, that is to say, best in the geographical as well as in the purely agricultural sense, labour fares less well and is easily induced to work for an employer. . . . Growing density of population has thus stimulated industry in Canada, the United States, Australia. . . . And the only urgency in the matter lies in the danger of Asiatics occupying lands close to their home countries, which are unoccupied or sparsely peopled by whites. That, of course, would be a racial danger and a threat to the white civilisation."

Dr. Brown evidently considers that geography has done all that it is called upon to do when it points out the danger. The question of averting the danger, he contends, raises other considerations, economic and not geographical. Therein without doubt he is right. But the student of geography may claim to be allowed to point out that the racial danger is not abolished even if the white man succeeds for ever in keeping coloured populations out of his preserves. The danger remains in another form where white capital assists in utilising coloured labour, which, it should never be forgotten, may be, however far from efficient, pecuniarily cheap in proportion to its efficiency. Now we hear two cries, one for cheap in the sense of low-priced labour, the other for efficient labour, which must be labour healthy both in body and mind, as really the most economic in the long run. One can only hope that the latter cry may in the end come to be universally dominant as that which is in the true interest of nations.

## THE EDINBURGH CONFERENCE OF THE SCOTTISH REGIONAL ASSOCIATION.

We have received the following official report of the conference of this Association, held at the Outlook Tower, Edinburgh, 4th-9th April last.

The meeting, while not numerically strong, was highly successful. A main feature was the surveying by the students of an actual area, viz. the mouth of the Esk. The existing Edinburgh Survey at the Tower was on view during the week, as well as Surveys of Deeside, Aberdeen (Aberdeen Regional Association), Leuchars (Dr. I. B. Mears), and the Island of Foula in Shetland (Mrs. Stoughton Holborn). Preliminary demonstrations on the general principles of Regional Survey, with special reference to the Edinburgh and Esk-mouth area, were followed by lectures on Natural History, Agricultural Science, and Civics. Dr. James Ritchie of the Royal Scottish Museum dealt with "Regionalism in Natural History" (that is, with Ecology). He illustrated clearly from animal life the fundamental solidarity between organism and environment which is the root-principle of both the Ecological and the Region-

alist outlook. Dr. W. G. Smith, of the College of Agriculture, carried forward the principle into Agricultural Science. He described the natural features of the country district of East Lothian adjoining the Esk, traced the relationships between its natural and economic flora and fauna, and touched upon the resultant modes of life of the country people, pointing out that East Lothian rises in a series of zones from the coast about Dunbar to the grassy tops of the Lammermuir Hills, and includes various kinds of farming and stock-raising, with their corresponding forms of human culture.

Mr. Frank C. Mears linked up country and town life, with special reference to the conditions in mediæval Edinburgh. He showed that in the early twelfth century each burgess farmed a definite allotment, which was attached to his house. There was thus at this period no divorce between town and country.

Attention was next directed to the main periods in the History of the Region. Before the coming of the Romans there would appear to have been a flourishing settlement in the area stretching from the fertile lower Esk valley up towards Duddingston and the eastern slopes of Arthur Seat (as shown, for example, by the abundant traces of cultivation-terraces on the latter hill). The Conference visited the site of the Roman headquarters at Inveresk, and, under the leadership of Mr. James Wilkie, S.S.C., inspected the remains, such as building-stones and portions of the *thermæ*, which suggest that a large field of work awaits the excavator in the area. Attention was given to the course of the Roman road called Dere Street, which, starting from Newstead on the Tweed, proceeded up Lauderdale and past Soutra, after which it probably divided into branches to the mouths of the Water of Leith (*via* Dalkeith) and of the Esk respectively. A coast road linked up these river-mouths with that of the River Almond, thereafter proceeding westward to join the Antonine Wall near Grangemouth. At the point where this road crosses a burn between Inveresk and Leith a highly important discovery was made by the Conference students on one of their afternoon excursions. This was nothing less than the hitherto unrecorded abutments of a Roman bridge.

It was also pointed out that the Roman Fort, on a sea-side bluff at Inveresk, commanded an extensive view and afforded the garrison easy access to the sea, while Edinburgh Castle Rock itself was apparently not occupied by the Romans, surrounded as it was by forest, bog, and barren hill.

Dr. W. B. Blaikie lectured upon the period which immediately followed the Roman withdrawal from North Britain, showing that the resistance of the Romanised Britons to the barbarian raiders (Picts and Scots, Angles, Saxons, and Frisians) was symbolised by King Arthur, apparently a British chieftain of the fifth century. It was during the period of invasions by sea that Edinburgh Castle appears to have risen into importance; the combination of seaport with a fortress three or four miles inland is common in this neighbourhood (cf. Leith, Edinburgh; Inverkeithing, Dunfermline; Innerleven, Kennoway; Tynninghame, Traprain). These fortresses were no doubt designed as refuges for the

natives of the coast, just far enough inland to dissuade pirates from leaving their boats in order to reach them.

The emergence of Edinburgh may thus be reckoned as part of the Arthurian movement in this Region. Dr. Blaikie produced good reasons for the belief that some, if not all, of Arthur's famous twelve battles with the barbarians were fought in the Region of the Antonine Wall, *i.e.* at the northernmost confines of Romanised Britain: the names attributed to certain of these battles, as, *e.g.*, Douglas, Wedale, and Mynedd-Agned, are highly suggestive, the last being actually the Brythonic name for Edinburgh.

Mr. Mears lectured upon the later stages in the history of the Scottish capital, and notably upon the creation of the Royal Burgh by King David I. in the twelfth century. He showed that the present High Street was in its original form laid out *en bloc* as an entirely new town, there being a noble central space upon the crest of the ridge, and the houses which surrounded it being each provided with a small holding which stretched laterally down the slope. It was owing to the later Wars of Independence that the original spacious lay-out of the Old Town became obscured: the necessities of defence confined the town within its wall; hence arose the lofty tenements or "lands," and building-encroachments blotted out the crofts. Thus was lost that definite rural element of mediæval Edinburgh which has never since been regained. Mr. Mears also showed how the classical plan of the New Town of the end of the eighteenth century broke down in large degree. He strongly urged the necessity for comprehensiveness of outlook (both in time and space) in all future town-planning schemes, as also for the need of recognising not merely the "bricks and mortar," but also the varied human population both in their homes and at their work.

Dr. A. J. Brock dealt with the remarkable development of Regional Survey (so-called *Hembygds-forskning*) in the Scandinavian and Baltic lands (Norway, Sweden, and Finland). Each of these countries has a central institute for Regionalism in its capital, with extensive ramifications into the remotest parts of the country. All classes of the population are employed in collecting material.

Among the observations made on the field-excursions was the importance of the geographical factor in war as in peace—thus the edge of the southern uplands (the Tranent-Gladsmuir ridge) played a notable part in battles fought close to Inveresk, *e.g.* those of Pinkie and Prestonpans.

One morning was devoted to a discussion on the Relation of the Regionalist Idea to Education; among others who spoke were Miss Mary Ritchie (Education Department, Natal), Miss Margaret Drummond (Provincial Training College, Edinburgh), and Miss Cowan (Edinburgh Education Authority). Emphasis was laid on the special value of Regionalist teaching in relation to the Seminar work which is beginning to take the place of ordinary class teaching in the newer schools.

# GEOGRAPHICAL NOTES.

## EUROPE.

**Present-day Russia.**—There has been issued recently by the Stationery Office (Cmd. 1240) a *Report* (Political and Economic) of the Committee to collect information on Russia, which we recommend to the notice of geographers. The *Report* is divided into two sections—the first giving a brief summary of recent history and of political conditions, and the second devoted to economics. The latter is naturally the more interesting to the geographer, and sets forth in a dispassionate fashion the main facts of the present situation.

Statistics are naturally difficult to obtain, and in any case are of no great value in a country where everything is in a state of flux, but the main facts seem fairly clear. According to the Committee, the War proved that Russian industry, which was still in a relatively primitive state of development in 1914, was unable to supply the needs of the army, and the administration was corrupt and inefficient. The immediate mobilisation of large bodies of men who could not be either trained or equipped, and whose removal injured industry and the essential services, especially transport, accentuated difficulties which must in any case have been great. The revolutions of 1917 were the outward and visible sign of the incapacity of the administrative machine to bear the strain put upon it. The nationalisation of industry when the Bolsheviks came into power led to a rapid diminution in production, first in industry and second in agriculture, and produced that rupture in the normal economic relation between town and country which is the most outstanding feature in present-day Russia.

The peasants, who form 80-85 per cent. of the total population, are of course the food producers; for Russia, in marked contrast to the highly industrialised countries of the west, is self-sufficing as regards the main food products. With the break-down of industry, in the restricted sense, the peasant found that he could not obtain from the towns such articles as clothing, boots, salt, sugar, kerosene, and so forth, which he had been accustomed to purchase there. The paper money in which he was paid for his products was of little or no use to him, and in consequence he ceased to send grain to the towns, and ceased to produce more than was necessary for his own needs. This led to starvation in the towns, with an accelerated fall in the production of manufactured goods. Of the two parties thus economically separated, the town-dweller naturally suffered most from the rupture. It is noted, for example, that the "village industries" have been greatly stimulated, and that the peasants have begun new ones, such as the making of rough nails and axes, and the spinning and weaving of their own flax into coarse garments. Further, since there has been a considerable exodus from the towns to the villages, sometimes of men skilled in trades, modern improvements have not been lacking there; thus it is noted that in some cases electric-lighting stations have been set up in the villages owing to the presence

there of engineers. With the methods proposed or adopted by the central government to restore the ruptured relations between town and country we are not concerned here, beyond noting that the virtual break-down of the transport system greatly increases the difficulties. It may be added, however, that the Committee found at least some evidence of the possibility that reorganisation may come rather from the side of the villages than from the towns.

Of the human side of this great tragedy this is not the place to speak, but one statement may be quoted as typical. At some mills near Moscow the death-rate among the workers and their families was so high that the local undertakers could not deal with the number of bodies, and a decree was issued that the various works were to manufacture coffins for their own employees and their families. The mills in question employed about 5000 persons, and made on the average 20 coffins per day, with a maximum of 30. Apart from other aspects of the question, it would appear obvious that an undertaking which devotes much of its energies to burying its employees can scarcely be said to rest upon a sound economic basis.

## Asia.

**The Chinese Earthquake.**—Some details are now beginning to be available of the great Chinese earthquake of December 16, 1920, which was recorded by instruments in different parts of the world at the time, but of which little has hitherto been known directly. The shock was one of great intensity, and lasted certainly three minutes. It was principally felt over an area of 15,000 square miles, in the provinces of Kansu and Shensi, the limits being approximately the parallels of 35° and 37° N., and the meridians of 105° and 107° E.; and the epicentre is calculated to have been about 35·8° N., 106·2° E. The effects were greatly accentuated by the nature of the country, for in the central area there is, it will be remembered, a thick bed of loess, with the characteristic deep stream-ravines, with nearly vertical sides. Many of the inhabitants lived in caves hollowed out in the loess "cliffs," and since earth-falls in this unstable material took place on a great scale, great numbers of people were entombed in their dwellings. Exact figures will probably never be obtainable, but the prefect of Pingliang gives an estimate of 180,000 deaths. At Kuyuan, very near the epicentre, 30,000 persons are said to have perished; while at Haicheng, farther north, about 70,000 people are said to have been buried by the falling in of the surrounding hills on the town.

## Africa.

**Mrs. Forbes' Journey to Kufra.**—Mr. A. Silva White, in a short article in *Nature* for May 19 last, discusses some of the bearings of the journey made last winter by Mrs. Forbes to the Senussi shrines. Mr. White points out that the last attempt at exploration in this region was made by Gerhard Rolfs in 1879. Rolfs then made two attempts.

On the first occasion he was turned back from Aujila and Jalo, while on the second he reached Kufra, but was taken captive and barely escaped with his life. Mrs. Forbes, thanks in part to the political conditions, and in part to her disguise as "a Moslem of half-English, half-Egyptian blood," was much more successful.

She started from Benghazi, the maritime terminus of the ancient trans-Saharan caravan route, and rode eighty miles south to Jedabia. Here the desert journey began, and with it the difficulties. The party, which included no other European except Mrs. Forbes, reached the oasis of Aujila, not without risk of starvation, and then Jalo, near by, which is the gate of the Libyan desert. The continuation of the journey south took the party by the oasis of Taiserbo, and, owing to the lack of wells and the inefficiency of the guide, was accompanied by great privations. Eventually the travellers reached Taj, the sacred city of the Kufra oasis, where for nine days Mrs. Forbes lived the life of a veiled Arab woman. The return journey was made by the direct route from Kufra to Jarabub. Mrs. Forbes speaks of this as a new route, but Mr. White points out that it was one of three opened up by the Senussi, the other two leading to Siwa and Khargeh respectively; it would appear, therefore, to have fallen into disuse, perhaps during the War. Jarabub had never been previously entered by a European, and Mrs. Forbes was even permitted to visit the tomb of the sainted founder. From Jarabub the journey was continued to Siwa, whence Mrs. Forbes reached Alexandria by motor. The details of the journey should prove of very great interest.

## Polar.

**New Arctic Expedition.**—Mr. Knud Rasmussen, the Danish explorer, is engaged this summer in a new Arctic expedition from Thule, on the coast of North-West Greenland. His aim is first of all to explore the unknown parts of the North American Arctic Archipelago, and second to investigate the migrations of the Eskimo from Bering Strait along the coast of Alaska and through Coronation Gulf. The programme is lengthy, covering three years of work. Lyon Inlet, in the Melville Peninsula, Hudson Bay, is to be the headquarters of the expedition, and during the autumn and winter of 1921-2 the Eskimo settlements near the station are to be visited by means of sledges. In the spring of 1922 the expedition is to move southwards to Chesterfield Inlet, where the Hudson Bay Company is to establish a food depot. From this point a journey is to be made across the Barren Grounds, visiting the almost unknown Kinipetu tribe, to the Arctic Coast, the return to Lyon Inlet being made in the spring of 1923. Here the collections are to be embarked for Denmark on board the *Sea King*, the ship of the expedition, while the leader, with one white companion and Eskimos, during the winter of 1923-4 will follow on sledges the old migration tracks across Baffin Land, Lancaster Sound, North Devon, Jones Sound, Ellesmere Land, and possibly Axel Heiberg Land to Thule.

## General.

**The Royal Geographical Society's Awards.**—The Founder's Medal of the Royal Geographical Society for the present year has been awarded to Mr. Vilhjalmur Stefansson, for his distinguished services to the Dominion of Canada in the exploration of the Arctic Ocean; and the Patron's Medal to Gen. Bourgeois, Senator for Alsace, Membre de l'Institut, for his long and eminent services to geography and geodesy as Director of the Service Géographique de l'Armée, and President of the Conférence Internationale de la Carte du Monde au Millionième. The other awards of the Society have been made as follows: The Murchison Grant to Commandant Maury for his surveys in the Belgian Congo; the Back Grant to Dr. Marion Newbigin for her contribution to geography, particularly of the Balkans; the Cuthbert Peek grant to Captain J. B. L. Noel for his reconnaissance of the eastern approaches to Mount Everest and other geographical work; and the Gill Memorial to Lieut.-Col. M. N. MacLeod, R.E., for his contribution to the theory of survey from air photographs.

**Summer School of Civics.**—We are informed that the Civic Education League proposes to hold a Summer School of Civics this year at Guildford, Surrey, from July 30 to August 13. The courses arranged include five lectures on "Geography as the Natural Basis of Social Life"; the name of the lecturer is to be announced later. There will also be courses on economics and anthropology. Early application should be made to Miss Margaret Tatton, Secretary, at Leplay House, 65 Belgrave Road, Westminster, S.W.1.

**The Edinburgh Meeting of the British Association.**—The arrangements for this meeting are now in an advanced state, and the Preliminary Programme and Invitation Circular has been issued. The Meeting will last from Wednesday, September 7, to Wednesday, September 14 inclusive, and the Reception Room will be the Parliament Hall, the Administrative Offices being in the Advocates' Library and other adjacent rooms. The Sections will meet in the various University Buildings, Section E being in the Old University. Section E is to be presided over by Dr. G. Hogarth, C.M.G., whose address is to be on "The Application of Geography." Arrangements are being made to permit local teachers to become members at reduced rates, a circular giving particulars being displayed in the Society's Rooms, and it is hoped that this privilege will be taken full advantage of by our teacher associates.

As a point of some interest in connection with modes of transport, we may note that a proposal is on foot to run motor-coaches from London, Bristol, Liverpool, and other towns to Edinburgh to convey members to the meeting. The fares would be approximately two-thirds those charged by the railways in each case. From London and points south of Liverpool the time taken would be two days; from Liverpool, Manchester, Leeds, and more northerly points the journey would be accom-

plished in one day. It is proposed to collect and deliver luggage. The scheme, if successfully carried out, will mark an interesting stage in the development of means of communication in this country.

**Obituary—Miss M. A. Czaplicka.**—Members of the Society who heard Miss Czaplicka lecture on her two visits to Scotland will learn with deep regret of her sudden and early death on May 20 last. Born in Poland, Miss Czaplicka studied geography at Libau and Warsaw, and came with a research scholarship to Oxford in 1910. There she devoted herself to anthropology, and in 1914-15 carried out an expedition to Siberia which involved great privations, of which, however, she made light. A popular account of her experiences was given in *My Siberian Year*, but the full scientific report has not yet appeared. Miss Czaplicka acted as lecturer in ethnology at Oxford during the War, and recently took up a similar appointment at the University of Bristol. She intended to be present at the Edinburgh meeting of the British Association, and those who knew her personally, and had felt her charm, will feel profound regret that Sections E and H will be deprived of the presence of one who combined exceedingly wide knowledge with great intellectual energy and acuteness.

## EDUCATIONAL.

**Geography in the United States.**—We have lately received noteworthy communications from two Universities in the United States bearing witness to the great amount of attention now being bestowed on Geography in that country. One of these is a pamphlet giving an account of the inauguration of Mr. W. W. Atwood as President of Clark University, Worcester, Mass., on Feb. 1 this year, and the other is the latest Circular of the Departments of Geology and Paleontology and Geography, 1921-2, of the University of Chicago. It is in itself a striking fact that President Atwood should have taken as the subject of his inaugural address, "The New Meaning of Geography in American Education," and both from his address and from communications received from Chicago we get information as to the great demand for teachers of Geography in the United States. President Atwood was formerly a professor at Harvard, and he tells us that in 1913 his predecessor warned him against leading too many men into the study of Geography, as places could not be found for them, but, he adds, that was true then but it is not true to-day, and from Chicago we learn from one of the lecturers that it is difficult to hold the students long enough for them to take their doctor's degree. They are snatched up as soon as they have taken the required lecture courses, and are offered such desirable positions that the temptation is irresistible. Both from the Clark University and Chicago we get interesting sidelights upon what seems to be the cause of this demand. It appears to be revealed in the following extracts from President Atwood's inaugural address:—"During the period of American expansion we have discovered and somewhat clearly defined

the natural resources of this country. . . . The time has come, however, when these resources have been largely appropriated. There are now very limited areas of land open to public entry, and those lands are in many cases not desirable. The coal, oil, gas, and many of the metallic resources have been appropriated. Our forests have been largely exhausted. . . . We cannot now as individual citizens select and have for the asking rich farm lands, great coal, oil, or gas fields, or valuable forest lands. Even the water rights on streams and all the best water-power sites are zealously guarded. . . . During the same period of time the other nations of the world have been expanding, until all the lands of the world that are valuable to man have been taken. . . . Are we not facing to-day definite signs of overcrowding, and consequent restrictional evolution? . . . We must develop in the American people an international point of view. We have reached the stage when our future growth, perhaps our peaceful existence, depends upon our judgment in dealing with the other peoples of the world. . . . Every one who is going into consular or diplomatic service should know the geography of the world—know it not simply as place geography, but as the geography which leads to an understanding of the hopes, the aspirations of the people."

It is quite in keeping with this to learn from Chicago that the latest addition of work is in the geography of soils, a subject that is pushed into the foreground now and meets a long-felt want. Clearly the absence of new areas of virgin soil ready to be brought under the plough with the least amount of labour is bringing into prominence the need for making the areas already under the plough more productive in proportion to their extent. The prominence (rightly) given to the study of soils in connection with geography in the University of Chicago must help to bring out more clearly the true relation of geology to geography; but if a like prominence is to be given to the subject on this side of the Atlantic, that must be another cause for regret that we are still, and, it is now to be feared, are likely long to be, without cheap maps showing the drift geology of our own country. We may add that the summer school number of the *Clark University Bulletin* mentions four teachers of geography, including the President of the University, in addition to a lecturer on meteorology and climatology, as engaged in the work, and at Chicago the Department of Geography includes two professors of the subject, two assistant professors, and four instructors. Altogether 56 different courses in geography are offered at that University arranged under six principal and four secondary sequences.

G. G. C.

# NEW BOOKS.

## EUROPE.

*The Upper Silesian Question and Germany's Coal Problem.* By SIDNEY OSBORNE. In two parts, complete in one volume. London: George Allen and Unwin, 1920. *Price* 12*s.* 6*d. net.*

In his Foreword the author states that in this book he "presents certain views which, however much they may seem favourable to German interests, are in no sense the result of German influences or pro-German bias." He adds that he "is a native-born American citizen, educated in the schools and higher institutions of learning in the United States," and has "made an investigation, on the spot, of the conditions and political problems in Upper Silesia, with special reference to the possible fate of that world-historic region under the provisions of the Treaty of Versailles." The conclusion to which his investigations have led him is given on p. 221, and may be expressed in his own words :—"If Germany is deprived of Upper Silesia, she will be like one stricken with paralysis in every limb, her factory fires will be extinguished, no smoke will be seen curling from the chimneys in her industrial towns, and the grass will be growing in the once busy streets which formerly teemed with interminable traffic. The hungry millions of thrifty workers will be ripe for rum [? ruin], riot and rebellion, and in this dangerous mood they will infect and poison the entire social life and civilisation of Europe and eventually of the world at large. This is but the naked picture as it presents itself to an unprophetic eye, but the reality will exceed in its awfulness anything that we can conceive, and in the extent of the desolation that will be wrought surpass all powers of the human imagination."

The book, on which we have not been able to find any printer's name, is full of misprints, repeated misspellings of common words, literal errors of all kinds, and strange compounds like "hereinbelow" (= *hierunten* ?). These errors are unfortunate, since the author relies chiefly upon statistics to prove his case, and it is difficult to feel confidence in his tables when so little attempt has apparently been made to ensure correctness in the text. There is also not a little irrelevance, and some of these diversions, such as the author's discussion of what he regards as the main facts of geology, do not increase the reader's confidence in his knowledge or judgment.

*Macedonia : A Plea for the Primitive.* By A. GOFF and HUGH A. FAWCETT, M.R.C.S. London: John Lane. *Price* 21*s. net.*

Service with the British Expeditionary Force in Salonika and the Struma Valley have gone far towards making Macedonia familiar ground to a large number of our countrymen, who, but for the exigencies of the War, would never have set eyes on it, and this book is, in such a measure, an outcome of the War. The authors claim for it in the Introduction, that it is "the first detailed description of Macedonia," which, at first sight, seems to be a tolerably large claim to make ; but Macedonia has never been a country for the tourist, conditions of travel having been too difficult and dangerous, and Mr. Goff and Dr. Fawcett appear to have made the most of their opportunities in the way of observation and exploration in this ancient and comparatively unknown land. They have compiled a very interesting account of the country and its people, and the beautiful drawings by Dr. Fawcett help to make up a very attractive book, the illustrations alone being vastly superior to the photographs which one usually finds in books of travel. We assume

that Mr. Goff is responsible for most of the description, and he says, probably with truth, that "most of those who found themselves unwilling sojourners on a strange soil, as a result of the war, were naturally prone to discontentment with their lot, and may therefore be pardoned if they regard Macedonia with a jaundiced (or shall we say, malarial) eye." The more credit then to the authors whose patient study has enabled them to set down their impressions of the country and its primitive people; their dress, dwellings, agriculture, and industries, in much of which there can have been little change in the last thousand years. The sketches of native implements and utensils show a high stage of art, in metal work, etc. The chapter on Flora and Fauna is brief, and no attempt is made to give more than a rough sketch of a subject which would require volumes to itself. The churches, Greek and Mohammedan, are described in some detail, and the simple dignity of the village mosque is compared with the elaborate and tawdry interiors of the Greek orthodox churches, much to the advantage of the former.

The critical reader might take exception to an occasional *naïveté* of expression; for example, the author says (page 79) that "the soil is remarkable for its versatility," and again (page 81) that "it produces tobacco with prolixity"; but these are minor blemishes, and no one can read the book without gaining a clear and interesting account of Macedonia and its people, while some of the pictures are very charming, and convey a good deal in themselves.

*Kincardineshire.* By the late George H. Kinnear, F.E.I.S. Cambridge: University Press, 1921. *Price* 4*s.* 6*d. net.*

Quite recently Principal Sir George Adam Smith stated that "the contents of an adequate Historical Atlas must comprise at least five" items; and these he proceeded to enumerate. Has any authority laid down the formative principle of a County Geography? Is it to be a well-arranged summary of all that is known about the county, collected primarily for the benefit of the inhabitants and natives of the county, who are keenly interested in their own little bit of the world? Or is it an introduction to the geographical study of the whole country or of the whole world, on the principle that study should *begin* with what is near and familiar? Or again, is it the *final stage of school study* of geography, on the principle of "first knowing something of everything and then everything of something"? The old Scottish county geographies published by Messrs. Collins were manifestly intended to be introductory to the study of geography. Modern county geographies seem to be written on the first or third principle, as this one is—and an excellent piece of work it is.

A more fundamental question in connection with a county geography is—Does the county in question possess any natural unity, or is it merely an artificial administrative unit? Linlithgow and Midlothian are counties without very manifest unity, physical or other; Kincardineshire, on the other hand, is clearly a geographical unity. It is the north-eastern end of the Grampian and sub-Grampian areas. More, one ventures to think, might have been made of this geographical unity of the county. Senior pupils thirst for generalisations and ideas far more than for additional matter-of-fact knowledge. The extension of the Grampian range north-eastward into Kincardineshire is no doubt manifest, but the extension of the plain of Strathmore into the Howe of the Mearns and even up to Stonehaven is not so evident to the young person's eye, and the real oneness of the Garvoch Heights and the Sidlaws and even the Ochils as an outer Grampian rampart is still less apparent. In this connection one notes that the reader is presumed to know what the meaning of the Scotch word "Howe" is, for it is not explained anywhere.

Likewise, in connection with the unity of the county, one might ask—Might not the strange breach of the unity of the county, viz. the extrusion of Kincardine north of the Dee at Banchory into Aberdeenshire, like a bridgehead held by an enemy, be historically explained? Speaking generally, this county geography forms a most readable and informing manual of Kincardineshire, and quite sustains the reputation of the series. It is with regret that one reads that the author did not live to see the publication of the volume, for which as finally published the general editor of the series is responsible.

The volume has no index, nor does it make any reference to the monumental history, *The Mearns of Old*, published as recently as 1914 by an enthusiastic native, the late Sheriff James Crabb Watt.

*The Story of the English Towns: Pontefract*, by J. S. Fletcher. *Harrogate and Knaresborough*, by J. S. Fletcher. *Birmingham*, by Canon J. H. B. Masterman. London: Society for Promoting Christian Knowledge, 1920. *Price 4s. net each.*

These books, all of which are nicely printed and well illustrated, are, as the name of the series indicates, primarily concerned with history rather than geography. But in contrast to some other series of similar character, a considerable amount of latitude has apparently been allowed to the authors in determining the scope and contents of the different volumes. Thus, while the volumes on Pontefract and the Harrogate area will appeal chiefly to the general reader with a taste for legend and biography, Canon Masterman's book should on no account be neglected by the geographer. We do not know any other book which gives in such small compass and with so much freshness, sympathy, and impartiality, so admirable an account of the rise of a modern industrial town. The author points out clearly the differences between Birmingham and some of the northern towns, first in that the textile industries did not establish themselves within it, and second in that the great variety of trades carried on prevented or postponed the rise of large factories with all their abuses. His accounts of some of the minor trades are of very great interest, as are also, from a different standpoint, the discussions of Birmingham's contribution to politics, local, national and imperial, in relation to local industrial conditions. We cordially recommend the book to the notice of our readers.

*The Place-Names of Northumberland and Durham.* By Allen Mawer. Cambridge: The University Press, 1920. *Price 20s. net.*

This volume belongs to the Cambridge Archaeological and Ethnological Series, and represents the result of some eight years of steady work, partially interrupted by the War. Professor Mawer limits himself to such place-names as are found in documents dating from before 1500 and can be identified on the modern map, undocumented modern names being omitted. The result of his survey is to show that the place-names of the two counties are predominantly Anglian; here, as elsewhere, it is true that river names are uniformly Celtic, but, save for the hill-name of Cheviot, other natural features are rarely named in early documents. A considerable number of town, village, and farm names are also apparently Celtic, but many of these occur in disguised form, or compounded with English names. There is comparatively little evidence of Scandinavian settlement, and it is curious to note that in Northumberland there are no examples of the Scandinavian suffixes of *by*, *beck* (for Wansbeck is deceptive), *toft*, *thwaite*, *garth*, or *scale*, all common on the other side of the Pennines. In Durham the use of beck for burn has increased in modern times owing to the influence of Yorkshire custom.

Among Anglian suffixes *shiel* is very common, especially in Northumberland, and in England the suffix is confined to these two counties. The frequency of this and of such suffixes as *haugh*, *hope*, *path*, or *peth*, and *law* in Northumberland and in Scotland south of the Forth, is interesting in view of the limits of the former kingdom of Bernicia, which, it will be remembered, extended roughly from the Forth to the Tees.

Professor Mawer believes that the names in *-ingham* (*i.e.* "homestead of the sons of") are among the oldest in the two counties, and represent a very primitive type of settlement. Such names, with one exception only, lie in well-watered fertile valleys, likely to be settled early by our Anglian forbears. In Northumberland all such names, with the solitary exception of Chillingham, are pronounced as if spelt *indžem*, ž having the sound of *z* in azure, and the *e* that of the second *e* of better. This pronunciation is unknown in Durham, though it sometimes occurs in south Scotland. The reason is apparently to be sought in the characters of the old English patronymics which give their names to the places.

The book has a good bibliography, and is worthy of the series to which it belongs.

*Belgium from the Roman Invasion to the Present Day.* By E[illegible]AMMAERTS. London: T. Fisher Unwin, 1921. *Price* 12s 6d

Belgium has occupied of late such a heroic place in the hist[illegible] of Europe that it is not surprising that two books upon it by Belgian auth[illegible]ities have been recently welcomed in an English form. One, by Professor Vander Linden, was reviewed in this *Magazine* in October last. In the present volume M. Cammaerts hopes that "his knowledge of England would allow him to present his material in the way most interesting to the English-speaking public." He points out that Belgium "was and is still to a certain extent the predestined meeting-ground of British, French, and German culture, the market-place where merchandise of ideas from the north, the west, the east, and the south may be most conveniently exchanged." "She is not only the cross-roads of Europe, she is the battle-field of Europe. From Bouvines (1214) to Waterloo and Ypres, almost all the great battles which decided the fate of Europe and determined her balance of power were fought on Belgian soil. With her rich coal-mines among her fertile fields, Belgium, considering her size, is perhaps more richly endowed by Nature than any other country in Europe."

After indicating the great Roman road which, beginning at Cologne, crossed the Meuse at Maestricht and passed through Tongres and Cambrai to Boulogne, the author notices the great boundary between the Flemish and Walloon races in Belgium. The Franks (a Germanic tribe) were the ancestors of the former, the romanised Celts or "Walas" of the latter, and the boundary between them "runs to-day where it ran fourteen centuries ago, from the south of Ypres to Brussels and Maestricht, dividing Belgium almost evenly into two populations belonging to two separate races and speaking two different languages." While many simultaneous events occurred in Britain and Belgium during the early stage of their history, none of these concomitant events is more striking than the appearance, almost at the same time, of St. Augustine in Kent and St. Amant in Flanders. For eight centuries the Church unconsciously devoted all its energy to bringing together the two groups of population, Flemings and Walloons, thus creating in Belgium a new type of civilisation, neither Frankish nor Celtic.

Up to the twelfth century only the lay and ecclesiastical aristocracy played a part in Belgium, so, when independent large towns were founded, a social revolu-

tion was produced. Then arose the splendid Cloth Halls and Belfries of Bruges and Ypres (destroyed by the Germans in 1914), of which fine illustrations are given in this volume. As these cities (or communes) drew from England most of their raw material, they were naturally drawn to her side in the wars of the thirteenth and fourteenth centuries. Their defeat of the aristocracy at the battle of Courtrai (1302) established Belgian nationality on a democratic basis. At the same time, "nowhere in Europe did the Christian faith penetrate so deeply among the common people." Thus great cathedrals arose, of which perhaps the most beautiful is Notre Dame of Tournai.

In the fifteenth century Belgium attained a period of economic, political, and artistic splendour under the Dukes of Burgundy. This century is for Belgium what the Elizabethan is for England. Bruges, Brussels, and Antwerp rivalled the great Italian Republics of the Renaissance. The most characteristic monuments of the fifteenth century in Belgium are the Town Halls. Effective representations are given in this volume of those of Bruges and Oudenarde. In painting, the works of Van Eyck, Van der Weyden, and Memling were conspicuous.

The marriage of Mary of Burgundy to Maximilian of Austria proved fatal to the independence of the Low Countries by bringing them under the sway of the Hapsburg dynasty. Charles v., however, received a Belgian education and always showed much sympathy for his Belgian provinces, which he scarcely ever left during the last years of his reign, from 1544 to 1555. His abdication took place at Brussels. His dynasty ruled Belgium for two centuries and a half.

During the first part of the sixteenth century Antwerp became the first market and the first banking centre in the world. In 1518 it became the cradle of Lutheranism. Subsequently Calvinism made progress. The year 1567 marks the beginning of civil war in the Low Countries, and while the people of the north adopted Calvinism, those of the south remained Roman Catholics. The modern history of Belgium is as fully treated in this masterly volume as the more ancient, concluding with the immortal defiance of Imperial Germany by little Belgium in 1914 in these fine words: "A modern nation might have been intimidated, but an old nation like Belgium, which had struggled towards independence through long and weary periods of warfare and foreign domination, was bound to resist." A splendid photograph of King Albert I. forms an appropriate frontispiece to this patriotic work.

*A Spring Walk in Provence.* By Archibald Marshall. London: W. Collins Sons and Co., Ltd., 1921. *Price* 15*s. net.*

Though the book is published in 1921, the Spring Walk was taken in 1914. Starting from beyond Nice, the writer worked his way westwards through Draguignan and Aix to the Avignon district, where he visited Nimes, Tarascon, Arles, and lesser known places. It is familiar ground, already much written about —as Mr. Marshall acknowledges— but there is still a place for this book. Previous writers, and especially Sir T. A. Cook, are freely and usefully quoted, and at the same time Mr. Marshall's practised pen tells his own tale in a fresh and easy style. The numerous illustrations, which are mainly from his own photographs, add to the attraction of the book.

Each wayfarer in these historic regions finds, probably in the minor places, some which appeal to him with the charm of novelty, some which are unlike any other places. In this book, besides the Church of Saint-Maximin and the Pont du Gard, the chief enthusiasm seems to be aroused by the Fortress Church of Saintes-Maries. It stands to-day, stern and dominant, in that great flat land,

Moreover, it possesses the peculiarities that the priest celebrates facing the congregation, and that gypsies gather there once a year to perform strange rites in honour of "St. Sarah." Mr. Marshall is excellent company.

*The Pilgrim's Guide to the Ypres Salient.* London: Published by Herbert Reiach, Ltd., for Talbot House. *Price* 3*s.* 6*d. net.*

For three years during the War there was established at Poperinghe, in the Ypres Salient, an "Everyman's Club," which was visited by more than half a million soldiers. For a brief period, also, a daughter house was established in Ypres itself. The Club received the name of Talbot House from its founder, and out of its activities there has grown up an organisation which aims at establishing Clubs for ex-service men and others in different parts of the country. The present book, which has been written entirely by ex-Service men, and has been compiled, written, and illustrated gratuitously, is being sold in aid of the funds of the organisation. It is intended for the use of those visiting the cemeteries and battlefields, and in addition to giving practical and detailed information for the use of visitors, has some general articles on the events of the War in the salient. It contains useful sketch-maps and a number of illustrations, and may be cordially recommended to the notice of those proposing to visit the area.

*The Way of Saint James.* By Georgiana Goddard King, M.A. In Three Volumes. New York: G. P. Putnam's Sons, 1920.

This is one of the publications of the Hispanic Society of America, and is got up with a lavishness of illustration and an expenditure on paper and printing which may well arouse admiring envy here. The author is Professor of the History of Art at Bryn Mawr College, and went to the shrine of St. James at Santiago, by pilgrim ways, in the course of an investigation into the part played by other countries, especially France, in influencing Spanish architecture during the Middle Ages. Her original intention was to follow the old pilgrims' roads all the way from France into Spain, but the War made this impossible, and the account of the journey, or rather journeys, begins at Pau. From this point, however, the route described is not direct to Santiago, for three years' wanderings have been condensed into a continuous narrative, and some of the places described were visited more than once on different occasions. In the more remote areas the journeys were not without difficulty, and the author, who was sometimes alone and sometimes accompanied by a woman friend, had some unpleasant experiences. To a geographical public the chief interest of the book must be in the accounts of life in relatively unfrequented parts of Spain. But the discussion of the early relations of Spain with Egypt and Syria, as shown in legends and forms of worship at Compostella, is of much general interest.

The style tends to lack simplicity, more especially in the descriptions of scenery, and the reader is disposed to regret that it is necessary for trees to "burgeon," and to wonder why darkness is "rich." But one must not fail to do homage to the enormous amount of work which the book represents, and to the steadfastness and devotion to her aim which the author displays, both in the field and the library.

## ASIA.

*A Naturalist in Himalaya.* By R. W. G. Hingston, M.C., M.B., F.R.G.S., F.Z.S., Captain, Indian Medical Service. London: H. F. and G. Witherby, 1920. *Price* 18*s. net.*

Between the years 1914 and 1916 Captain Hingston visited at intervals the Himalayan valley of Hayara, which is a long, narrow wedge of British territory

situated between the Indus River and Kashmir. His book begins with a geographical description of the district, concludes with a geological sketch, while between are seven chapters devoted to the results of a close and patient inquiry into the habits of ants and spiders, and five chapters dealing with other insects, as well as certain mammals and birds. The first and last chapters form a necessary framework, and are well done, but the main body of the work is of absorbing interest. Nothing could be more admirable, for example, than the account of the numerous experiments on ants and spiders, which brought out the extraordinary and apparently capricious limitations of instinct. The methods employed by the spider in building its geometrical web are described with Gallic minuteness and vivacity. Some ants display what seems to be reason and even sympathy at one time, and at another the utmost folly. The answer that human beings do the same will not fit, because, as the author proves, in the main these insects are tyrannised over by their instinct. They do certain things, but they have no knowledge why they do them, and they are unable to alter their actions to suit altered circumstances. The book is well illustrated by figures in the text, and by photographs of Himalayan scenery.

*Allenby's Final Triumph.* By W. T. Massey, Official Correspondent of the London Newspapers with the Egyptian Expeditionary Force. London: Constable and Company, Ltd., 1920. *Price* 21*s.*

Mr. Massey has already in two previous volumes chronicled the advance of the Egyptian Expeditionary Force through Sinai and the series of operations in Palestine which culminated in the occupation of Jerusalem, and in the present book he brings his history to its fitting conclusion. The first thought that occurs to one is that, published as it is after the restraining hand of the Censor has been removed, we may well look here for the series of exposures and recriminations which have come to be associated with an "inside view" of almost any phase of the Great War—differing in this respect not so very widely from other wars less "Great." Save, however, for an occasional suggestion that the views of "the non-military gentlemen who took a part in the councils of the Allies" were generally over-optimistic and even rash in comparison with the more balanced judgment of the man on the spot, we find nothing of this here. Mr. Massey's book presents such an extraordinary contrast to, for example, Sir Philip Gibbs's *Realities of War*, that one is almost tempted to wonder whether the *couleur de rose* has not been overdone, whether no one fell short of perfection, and, during the whole course of the operations, no commanding officer or brigadier was awarded "a bowler hat"! However this may be, Mr. Massey has certainly succeeded in providing a full, clear, and excellent account of the great advance in 1918, which destroyed and rounded up three Turkish Armies and carried Allenby's cavalry to Aleppo. There are many good illustrations and three clear maps, though it would certainly have added greatly to our comprehension of fighting in so mountainous a country as Syria, had it been possible on the maps to show land relief. We are not bound to follow Mr. Massey in the conclusion he draws from these operations that Lord Allenby's military reputation should rest on what was achieved in 1918 rather than in the previous year, and that "the conquest of Jerusalem, important though it was, will not, as a military triumph, compare with the stupendous victory obtained in the last six weeks of the campaign in Palestine and Syria." No doubt the victory in the Plain of Sharon was skilfully and secretly prepared, and the subsequent moves of the cavalry and of Feisul's Arab Army brilliantly conceived and boldly executed. No doubt also the able commander knows how to achieve

his results with the minimum loss of life. But in 1918 the British Commander-in-Chief had at his disposal so great a superiority in all arms of the service, above all in cavalry, as enormously to simplify his problems. For the battle of Sharon some 9000 cavalry, 35,000 rifles, and 380 guns were concentrated against 1200 cavalry, 8000 rifles, and 130 guns of the enemy. Furthermore, since 1917 the fighting spirit was, not unnaturally, to a large extent out of the Turk, who specially dreaded our superiority in artillery. The total battle casualties of the Desert Mounted Corps from 18th September till the capture of Aleppo are given by Mr. Massey as 659, though there were undoubtedly in addition many thousands sick; those of the XXth Corps of three divisions, which had to fight its way through the hills to Nablus, totalled 1505 for the five days from 19th September. As against this, one brigade in 1917 from the attack on Gaza on the night of 1st November till the battle at Nebi Samwil and El Jib on the 24th of the same month had, including a small proportion of sick, 2400 casualties. The four brigades which assaulted Gaza had 1700 casualties in 48 hours. These figures would certainly seem to suggest that the enemy's resistance in 1918 did not and could not complicate, to the same extent as in 1917, the problem the Commander-in-Chief had to solve.

*A Painter in Palestine.* By Donald Maxwell. London: John Lane, 1921. *Price* 6*s.* 6*d. net.*

The author of this book describes it as "an impromptu pilgrimage through the Holy Land with Bible and Sketch-book," while the Dean of Rochester, who contributes a "Foreword," describes it as "a serious contribution to the study of Bible Lands." The two quotations may be said to characterise it sufficiently. There are a great number of plates, sketches, sketch-maps, and diagrams, which, together with the descriptions, enable the reader to realise clearly the nature of the scenery in the regions visited. We may note especially the account of an expedition on horseback from Jerusalem to Jericho, by way of the Kidron Valley and the monastery of Mâr Saba, whence the journey was continued by the hill country till a gorge permitted of a descent to the north end of the Dead Sea. The expedition was undertaken at midsummer, and the description of the heat and desolation is exceedingly vivid. The book, it may be added, was written before the War, and though Mr. Maxwell has revisited Palestine since, he has left his original text unaltered.

*A Diplomat in Japan: The Inner History of the Critical Years in the Evolution of Japan, etc.* By the Right Hon. Sir Ernest Satow, G.C.M.G., LL.D., D.C.L., formerly Secretary of the British Legation at Tokio. London: Seeley, Service and Co., Limited. *Price* 32*s. net.*

As is indicated in the sub-title, Sir Ernest Satow's book, which is compiled from his own diaries and recollections, covers the critical period in the evolution of modern Japan, between the years 1862 and 1868, during which the ports were opened to foreign trade, and the country, after centuries of seclusion, prepared to take her place in the comity of nations. This same period covered the series of events which culminated in the deposition of the last of the "Tycoons," or Shoguns, to use the more correct term, and in the restoration of temporal power to the ancient dynasty of the Mikados. The book is therefore a narrative of political events of a crucial time which is marvellously near, and yet, considering the changes which have taken place in the interval, appears to be so long ago; and there is no man living who had so much to do with these events, or is so well able

to describe them, as Sir Ernest Satow. His book contains a perfect mine of information for the student or the historian.

Following the treaties of 1858, which were signed after the expeditions of Commodore Perry, a beginning had been made for foreign trade by the opening of Kanagawa (Yokohama), Nagasaki, and Hakodate, and merchants had settled at these ports, while the treaties also provided for the opening later of Yedo (Tokio), Kobe, Osaka, and Niigata. In its earlier days our Legation was dependent upon a clumsy system of interpretation from English into Dutch, and from Dutch into Japanese, and *vice versa*, a relic of the days when the Dutch merchants, who were virtually prisoners in their factories at Decima, Nagasaki, held a monopoly of foreign trade on these rather humiliating terms. Sir Ernest Satow, on joining the staff of the British Minister, Sir Harry Parkes, set himself to remedy that state of affairs, and he very soon was in the unique position, for that time, of being the only Englishman who had acquired sufficient knowledge of the language to speak and write Japanese correctly, and to communicate with the native officials. His appointment as Interpreter, and later as Japanese Secretary to the Legation, followed naturally. In the meanwhile he had made himself *persona grata* to the Japanese, had made friends of many of the officials, and was able to accomplish much by the sheer weight of his character and proved integrity. His very name —*Sa-To*—was Japanese. At an early date he established himself in his own house at Yedo, lived in native fashion, and, as he says himself, "was able to devote himself to Japanese studies, and to live intimately with Japanese, thus becoming acquainted with their thoughts and views," and in doing this was "perfectly happy." To what purpose he thus devoted himself to the study of the Japanese people and their country is known to the world, and calls for no emphasis in this review.

The attack on the British Legation at Yedo by two-sworded men took place in 1861, at the time when Sir Rutherford Alcock was Minister and Laurence Oliphant one of the attachés, and has been described by the latter. Sir Ernest Satow, who arrived in Japan from Peking in the following year, joined the staff of the Legation at a time which remained under the influence of the above events, and when residence at Yedo was thought to be unsafe for foreigners, the work of the Legation being meanwhile carried on at Yokohama under the guard of a British regiment. The Mikado remained invisible in his palace at Kioto, which city continued to be the capital until 1868, when the revolution drove the Shogun from power and restored the Mikado. Sir Ernest Satow points out that the Jesuit missionaries of the sixteenth and seventeenth centuries "uniformly held the Mikado to be a spiritual dignitary, and spoke of the Shogun as the real ruler of the country, the temporal King, and even Emperor." The last of the Shoguns at the time of the revolution was named Tokugawa Yoshinobu (or Keiki), and Sir Ernest Satow describes him as having been a man of very considerable personal dignity. The first dealings for the opening of the ports to foreign trade were with this potentate, and up to the time of the revolution it was a question with some of the representatives of foreign powers—notably in the case of the French Minister—whether to deal with him or to recognise the authority of the Mikado: but Great Britain decided ultimately in favour of the latter. These earlier years of foreign intercourse with Japan were marked by the outbreak of a strong anti-foreign spirit, and by the murder of inoffensive European travellers on the high-roads by the retainers of the Daimios, or Barons of feudal Japan. Sailors from French and British ships were also done to death, and demands for reparation were made which led to the bombardment of Kagoshima by our war vessels, and also to the naval operations in the Straits of Shimonosheki, all of which find a

place in Sir Ernest Satow's diaries. His journals of overland travel, undertaken mostly for purposes of state, form an interesting part of his book. These journeys led him through country which, like the rest of interior Japan, had been closed for centuries to Europeans, and the danger from fanatical attacks seems only to have added zest to his appreciation of what he saw and did. Accounts of the reception of foreign Ministers by the Tycoon, and also by the Mikado, both at Kioto and at Yedo, find an important place in the diaries, and Sir Ernest closes his volume with his departure from Japan on his first home leave in 1868, though his service in the country extended for many years after that time. It will be remembered that he was made British Minister in 1895.

The book bristles with Japanese words and names, but a useful glossary at the end obviates the need of distracting footnotes. It is, perhaps, not invidious to mention that the chronology leaves something to be desired. Months and days are named, but it is only with a search that the reader can find out which are the years referred to in certain parts of the diaries. J. D. M.

## AFRICA.

*The Life and Explorations of Frederick Stanley Arnot.* By Ernest Baker. London: Seeley, Service and Co., 1921. *Price* 12*s.* 6*d. net.*

Born of good Scottish stock, F. S. Arnot, when six years of age, came under the spell of Dr. Livingstone. The great explorer, who had just returned from the Zambesi, gave an account of his travels which so impressed the boy that he determined when old enough to devote his life to the well-being of the African native.

Applying himself diligently to various studies in arts and crafts, he left home under the auspices of the "Brethren" at the age of twenty-three years for the Dark Continent. Arriving at Durban in 1881, and striking in a north-westerly direction, he made for the Zambesi through the Kalahari desert, continuing onwards through the Barotse valley *via* Bihé to Benguella on the West Coast, thence to Mzidi's country in the Garenganze (known to-day as the Katanga country), famous for its copper ore. Here he founded a mission station, manned before he left for home by two workers, and arrived in England *via* Benguella 1888, where he was fittingly recognised on account of his valuable work. His marriage took place a few months after his arrival in England, and with his wife and a party this time he once more made for Africa, arriving at Benguella *en route* for the interior. The party became sadly depleted owing to the ravages of the climate, but the remainder undauntedly carried on. Later, the Garenganze station was in danger of isolation, and it was moved to the western shore of Lake Mweru. Arnot paid a flying visit to the new station, travelling *via* Nyasaland, thence to Tanganyika *via* the Stevenson Road, and westwards to his destination. He then led a party on his fourth journey to Loanda, thence *via* Bihé, and remarks on the wonderful change wrought upon the natives during the previous nine years. His later journeys up to his ninth and last were of shorter duration; malaria, contracted in the Barotse valley, and the hardships and perils endured during his first sojourn, told upon him, until finally death claimed him at the comparatively early age of fifty-five years. His remarkable energy and enthusiasm may be gathered from the fact that, excluding railway travelling, he covered a distance of no less than 29,000 miles on foot, in hammocks, canoes, or on the backs of donkeys or oxen.

While not a scientific geographer like Livingstone, he nevertheless was the means of imparting valuable information concerning the regions he traversed.

Mr. Baker has done well in allowing Arnot to tell his own story chiefly by

means of his diaries and letters, and with its illustrations, map, and index, the book may be heartily commended to the readers of the *Magazine*.

*The Geology of the Plateau Tin Fields: Geological Survey of Nigeria.* By J. D. Falconer, M.A., D.Sc. London: Published by the Nigerian Government, 1921. *Price* 10*s*.

Dr. Falconer, the able Director of the Nigerian Geological Survey, began operations in 1919, and this is the first Bulletin his department has issued. Tin was discovered by the Niger Company in the early years of this century, but it is only since 1910 that the output of tinstone has become considerable. In 1919 there were 80 producing companies, and their joint output was 8174 tons. The tin-producing land lies at an elevation of some 2000 ft., but the richest deposits have been found on the Bauchi Plateau which rises to 4000 ft. The rocks are mainly crystalline schists, gneiss, and granite, and it is in the debris of the granite that the tinstone is found. The crystalline rock foundation is partly buried under a far younger fluvio-volcanic series of beds, such as grits, earths, and clays, that have covered up the tin-bearing gravels overlying the granite. There are various volcanic centres where basalt lava-flows are described, but all the volcanoes have long been extinct and subjected to prolonged atmospheric denudation.

Petrographical details and good photographs are given of the various rocks and the landscapes, and a geological and topographical map on a scale of 2 miles to an inch shows the results of Dr. Falconer's work. The railway line through the various mining camps on the plateau is also clearly shown. No doubt this excellent bit of work will be the precursor of further useful geological and topographical explorations, and Dr. Falconer is to be congratulated on the appearance of the first Bulletin issued by his department.

## AMERICA.

*The Geography of the Ozark Highlands of Missouri.* By Carl O. Sauer. Chicago University Press, 1920. *Price* 12*s*. 6*d*. *net*.

This book claims to be a study in regional geography—the Ozark Highlands of Missouri being the region selected, although, as the author states in his preface, the size of the area precludes an exhaustive treatment and rather opens up the path to more detailed work. The book falls into three parts. The first deals with the environment: one of the most valuable sections treating of soils and other material resources, and this part closes with a division into geographical regions "taking into account nature of area, topography, drainage, soils, minerals, water-supply, and vegetation . . . the test of the appropriateness of these divisions" being "determined by the contrasts exhibited in the conditions and occupations of the inhabitants of the different areas so set apart." The result of this arrangement is that one arrives at Part II. able to appreciate the question of settlement and development with which it deals. This part is largely historical, the numerous authorities drawn upon being referred to in footnotes. By far the most interesting part is Part III., dealing with recent economic conditions where the writer's first-hand knowledge of the region, combined with his real love of it, enables him to give an extraordinarily vivid picture of the life with its geographical background, and it should go far in inspiring other American students to carry out more detailed study in the same region. The section dealing with farming and the different types of farmers found in the different areas is particularly instructive and

interesting. The work is illustrated by diagrams, and at the end are photographs of real geographic value and useful in supplementing the text. The diagrams are often indistinct owing to their small size and the amount of detail which they contain. One misses full-page maps. Those given are small and often difficult to locate without the larger map, and the scale is generally omitted. On p. 156 early settlement in the Hickory Country is described as beginning in the SE. corner, while from the map on p. 157 it appears to have begun in the SW. One looks forward to further work from such an enthusiastic and appreciative observer.

*Cartagena and the Banks of the Sinú.* By R. B. Cunninghame Graham, Author of *A Brazilian Mystic*, etc. London: William Heinemann, 1920. *Price* 15*s. net.*

Mr. Cunninghame Graham has visited several parts of the world, and written books about some of them, and each new book seems better than the last. He resembles Sir Richard Burton in the scope and accuracy of his knowledge, but he far surpasses him in the attractiveness with which he presents it. He was sent out during the War to Colombia—not Columbia as the publisher's notice on the cover has it—to investigate its possibilities as a source of meat-supply. In the course of his investigations he travelled in the Department of Bolivar, and along the Sinú River. The first fifteen chapters are occupied with a geographical and historical account of the province. In the latter the career of Don Pedro de Heredia, founder of Cartagena, from his arrival in 1533 to his death thirty years later, a short distance from Cadiz, where after shipwreck "a great billow dashed him on the rocks, washing his body out to sea," is narrated with thrilling effect. The remaining chapters deal with the author's travels in the province. He is convinced that its future lies in cattle-raising, with possibilities of at least temporary prosperity from the newly-discovered oil-fields. The book has, alas, no index, and not even a table of contents.

*In Canada's Wonderful Northland.* By W. Tees Curran and H. A. Calkins, B.Sc. London: G. P. Putnam's Sons, 1920. *Price* 25*s.*

For eight months the authors travelled by canoe, motor-boat, and dog team on the northern rivers and along the New Quebec Coast of Hudson Bay, and in this volume, which has sixty illustrations and maps, their experiences are told in convincing but unpretentious style. Their business was to extend their own and our knowledge of the natural resources and economic possibilities of Ungava, and, in spite of adverse weather and other vexations incidental to travel in little-known regions, they succeeded in doing much work of a valuable nature, and in correcting some misconceptions as to the importance and value of what has been generally considered a barren and inhospitable district. They are optimistic about the future of the region on several counts. They "established beyond all doubt the existence of an almost inexhaustible supply of iron ore on certain islands of Hudson Bay." East of the bay the country is believed to be rich in minerals, and the east coast of James Bay promises, with its plentiful supplies of pulp wood, to be a centre of the paper industry. In certain portions the long summer days are favourable to the growth of agricultural produce. Extensive water-powers, capable of economic development, were found, so it would appear that if railway enterprise opens up this territory, New Quebec will have a bright and useful future. The appendix with its information about harbours and camping-grounds will prove serviceable to future workers in this region.

## AUSTRALASIA.

*Captain Bligh's Second Voyage to the South Sea.* By Ida Lee (Mrs. Charles Bruce Marriott, F.R.G.S., Hon. F.R.G.H.S., Author of *The Coming of the British to Australia*; *Commodore Sir John Hayes, His Voyage and Life*; and *The Log-Book of the "Lady Nelson."* London: Longmans, Green and Co., 1920. *Price* 10*s.* 6*d. net.*

In this book Mrs. Marriott has added another valuable contribution to the history of geographical discovery in the South Sea and Australasia. On the return home of Captain Bligh, after his wonderful voyage in an open boat from Tahiti to Timor, he was again sent out with two ships, the *Providence* and the *Assistant*, to carry out the task, which the mutiny had foiled, of conveying bread-fruit trees to the West Indies. Mrs. Marriott relates the successful accomplishment of this voyage, largely from Captain Bligh's Journals. The result is to establish more firmly than before Bligh's fame as a navigator and discoverer. A chapter, inserted about the middle of the book, retells the oft-told tale of the mutiny, but with the purpose of comparing the course of the boat-voyage with that of the *Providence* and the *Assistant* two years later. Reproductions of contemporary prints and charts add to the value of the volume, which may be commended to the student as well as to the general reader.

## POLAR.

*The Lands of Silence: A History of Arctic and Antarctic Exploration.* By Sir Clements R. Markham. With Maps and Illustrations. Cambridge: University Press, 1921. *Price* 45*s. net.*

Towards the close of a long and distinguished career, when over eighty years of age, Sir Clements Markham, with characteristic enthusiasm, began this account of polar exploration. The volume was almost finished before the author's death in 1916, and has been completed by Dr. F. H. H. Guillemard by the addition of a few chapters. No attempt has been made to revise it to the date of publication, nor, we regret to see, to check the mistakes in dates, verify the positions, or correct the many misstatements which it contains. Sir Clements Markham brought to his task over half a century's interest in the subject and a wealth of personal recollection of great explorers, but age did not mellow his judgment nor soften his prejudices. It is not fitting to attempt any controversy over debatable points now that Markham has passed away, but some of the blemishes are too obvious to be overlooked, if only because the author's name might carry some guarantee of historical accuracy and sound judgment.

The attempt to limit polar regions, north and south, by the parallel of 70°, and sub-polar regions by the parallel of 60°, shows not merely ignorance of actual conditions but almost a mediæval point of view. It can in no sense be justified. As regards sledging, Markham persists in praising man-haulage and deprecating the use of dogs, ignoring the fact that Norwegians like Sverdrup and Amundsen, who know how to use dogs, have completely vindicated their value in polar work, and shown how immensely superior they are to men for haulage purposes. Again, in relation to ice navigation, Markham shows a failure to grasp modern methods and utilise the experience of past failures when he extols Filchner's ice navigation in the Weddell Sea. "There was no impenetrable pack for him. He put the ship's stern straight at it, . . . and forced her through." Such a course, which, however, is not a just estimate of Filchner's action, would have indicated nothing but sheer obstinacy and stupidity in the south of that dangerous sea. Incidentally the name

of Filchner's ship is wrongly given. Markham claims to value scientific enterprise above sensational endeavour, and to deprecate mere record-breaking, but in this attitude he is not consistent. He shows a singular partiality for recording sensation and hardship on the part of naval expeditions, and has less inclination to praise sound and successful endeavour by private individuals.

Three-quarters of the book treat of the Arctic regions. In actual record of fact, except for mistakes in dates and names, these pages are fairly full, and those dealing with early voyages comprise the most useful part of the book. The probable Norse discovery of Spitsbergen, as Svalbard, in the twelfth century is not mentioned, and there is no record of Stefansson's brilliant researches nor of Vitkitski's remarkable discovery of Nikolas Land. Dr. J. Rae's discovery of the fate of the Franklin expedition is given a grudging recognition. The hare does not occur in Spitsbergen, and it is inaccurate to write of the snow-covered hills of North-East Land. But such minor inaccuracies are numerous.

In the Antarctic chapters some fifty out of one hundred pages are devoted to Captain Scott's work, while Bruce, Drygalski, and Charcot are each dismissed in about a page. Markham's tireless efforts in the furtherance of Scott's expeditions are well known, and no one has anything but praise for Scott's splendid work and the high spirit of the man himself, but it is a poor tribute to his memory, which needs no such distorted outlook, to minimise the work of his contemporaries. We venture to say that Scott himself would have been the first to criticise such methods. Charcot's first expedition is given five lines, the work of de Gerlache and Amundsen (the latter, however, is the editor's chapter) is not duly appreciated, and Bruce's work is ridiculously underestimated. The discovery of Coats Land made the greatest change in the map of Antarctica since the days of Ross, but Markham ignores this. Mawson is given less than three pages, and Shackleton's last expedition is not included. Moreover Markham is wrong in saying that there "was no concerted action (with the *Discovery*) except as regards the Germans." There were definite arrangements to avoid overlapping in spheres of action and to secure co-operation in meteorological work. The earlier expeditions of last century, excepting the naval expedition of Ross, are poorly treated, and it is a mistake to say that Cook, who never saw the mainland, discovered the continent. The maps are poor. R. N. R. B.

## GENERAL.

*An Elementary Palaung Grammar.* By Mrs. Leslie Milne, F.R.A.I., M.R.A.S., Author of *Shans at Home.* With an Introduction by C. O. Blagden, M.A. Oxford: at the Clarendon Press. *Price* 8*s.* 6*d.*

As Mr. C. O. Blagden, who is a recognised authority on the peoples and languages of Further India, says in his scholarly introduction to Mrs. Leslie Milne's book, "it is quite capable of speaking for itself, being the first grammar ever published of a little-known language belonging to a very interesting and scientifically important family of speech." It is, moreover, the first attempt to reduce the speech of the Palaungs to writing, and for this reason alone it is noteworthy, quite apart from consideration of the extraordinary labour and skill which Mrs. Leslie Milne has brought to her self-imposed task, and of the patient research which was required to bring it to fruition. The Palaungs, or their ancestors, apparently formed part of a great race, originating in India, who penetrated as far as Assam and Cambodia, and to Siam, South China, and the Malay Peninsula, and who are known to philologists of to-day as the Mon-Khmer, the latter name

being derived from *Mon*, the old name of the Talaings, and *Khmer* Cambodia. The Talaing branch of the Mon-Khmers appear to have fallen under Burmese domination, and Burmese has to a large extent usurped the place of the ancient Talaing language; which, however, unlike the Palaung, possesses a written vernacular. The Palaung branch of the Mon-Khmers seem to have been driven to the hill-tops by invading Shans and Burmans, and, though divided into clans, they have maintained their own language and individuality. Their capital is at Namhsan, and the dialect spoken there, which may be considered to be the classical dialect, has been adopted by Mrs. Leslie Milne in reducing the language to writing. It is not possible to go much into detail in this brief notice, but it will be seen on taking up the grammar that the usual order of sentences in Palaung is subject, verb, object—as in English; also that, in addition to the singular and plural personal pronouns, there are *dual* personal pronouns used to signify *thou and I*, etc. The verb is extremely simple; it never changes, and there are no irregular verbs—a blessed thing for the learner! It is curious to notice that, as in Highland and Irish speech, a Palaung uses the future tense to express the past, for example, "he will be telling me," for "he told me," etc. There are some amusing and rather witty turns of speech too—for instance:—

He is a bore—"His words enter the jungle" (page 140).

You talk nonsense—"You do not know the road" (page 140).

He is very lazy—"He is overcome (or covered) with mildew" (page 142).

To be worthless—"Not worth a flea" (page 144).

The story at the end of the book is literally translated, the English equivalent appearing beneath each word. It tells of a White Water Snail who married the king's daughter, and who, from an ugly creature, was transformed by the power of love into a handsome young prince. It has the old happy ending, and, in its resemblance to "Beauty and the Beast," is an interesting fragment of folk-lore.

Mr. Blagden, in his introduction, points out that, should Palaung die out (of which there is not much fear at present), this grammar will survive as a valuable record of an interesting form of speech; while, in the meantime, it serves the useful purpose of enabling Government officers and others to deal directly with the people in their own language.

*Fifty Years of Travel by Land, Water, and Air.* By Frank Hedges Butler. London: T. Fisher Unwin, Ltd. *Price* 21*s*.

Mr. Butler, in addition to his other activities, has travelled widely and persistently; he has, moreover, he says, inherited the habit of keeping diaries—a habit which has enabled him to put on paper a concise record of his various wanderings. The earlier ones related in this book are chiefly over well-beaten tracks, but they gradually led him to less familiar places, until we find an interesting account of a winter journey through Lapland, during which he dressed and lived like the Lapps, and he has much to tell of the country and of the lives of a primitive and attractive people. Winter is the time for travel in Lapland, because the summer is short and comparatively hot, much of the land is marshy and the mosquitoes are a terrible pest, while in the winter the pulka, or reindeer sledge, affords a fairly quick and comfortable means of travel. Speaking of Enare, on the lake of that name, Mr. Butler writes, "This was one of the places I particularly desired to see. As I could find no books or description of this part of Lapland in any of the Geographical Societies' libraries, the only way to find out what the place was like was to go there and see it for myself." Surely this is the real spirit of travel! Mr. Butler recommends Vadso as a splendid centre for skiing and

pulka-driving, and it appears to be fairly accessible, as it can be reached *via* Newcastle and Bergen in about six days. A description of the Petchenga Monastery on the great Kola Peninsula (the Murman Coast) shows what the Russians can do in the way of church and settlement building far within the Arctic circle. The climate of the Kola Peninsula apparently presents no extraordinary severity in winter, although the polar night lasts from the end of November until the middle of January; while in the brief summer plant and bird life flourish, and Mr. Butler says that 200 different varieties of birds may be found.

With kaleidoscopic rapidity Mr. Butler changes his scene from the snows of Lapland to British East Africa, where he goes big-game shooting, and he has some interesting photographs to show of the natives and of their customs at funerals, etc.

Mr. Butler also narrates his own experiences at Reims, Epernay, Paris, etc., during the war years, and he has a good deal to tell of the life in cellars at Reims during the long martyrdom which that city suffered from the German bombardment. He is the founder of the Royal Aero Club, and also a chairman of the Royal Automobile Club, and, in addition to the pioneer work which he did in the early days of the automobile, he made no fewer than 100 balloon ascents. He also shared in the flights of the Wright brothers at a time when aeroplanes and dirigibles were in their infancy.

We have only been able to refer to a part of the author's varied experiences by flood and field and in the air. He describes them modestly and well, and his book makes very entertaining reading. It also contains a large number of excellent photographs.

## EDUCATIONAL.

*Meteorology.* By R. G. K. Lempfert, M.A., C.B.E., Assistant Director of The Meteorological Office. London: Methuen and Co., 1920. *Price 7s. 6d. net.*

This book will prove useful to those who already possess an elementary knowledge of Meteorology, and who wish to study its dynamical aspects without using advanced Mathematics or having to search among original papers for the more recent theories. The author writes out of the fullness of knowledge—he is well known for his original studies of Line Squalls, and for his work along with Sir Napier Shaw on the *Life History of Surface Air Currents*—and is to be congratulated upon placing before us in such simple form theories that properly belong to the realms of mathematical physics.

Amongst much that is good, two chapters are perhaps outstanding. That on "The Physical Processes of the Atmosphere" (chap. 11) handles a very difficult subject excellently; and that on "The Thermal Structure of the Atmosphere" (chap. 14), in the light of recent explorations of the upper air by means of kites and balloons, disposes finally of the theory that the centre of a depression is a region of warm moist air. Throughout the book, the most recent research is constantly appealed to—such as Taylor's work on eddy motion and Bjerknes's work on "lines of flow."

Altogether the book is a most helpful one, but we should have been grateful for a chapter on thunderstorms, a subject only lightly touched upon and not mentioned in the index, as well as some discussion of atmospheric electricity.

Many diagrams, tables, photographs, and charts are interposed in the text; amongst them, two photographs showing stratocumulus as seen from above and below deserve special mention; but Fig. 7 on "favourite tracks of centres of depressions" is rather misleading.

*An Advanced Practical Physical Geography.* By Capt. F. Morrow, M.C., B.A., F.R.G.S., and Ernest Lambert, L.C.P. Meiklejohn and Son, Ltd., 1920. *Price* 7*s.* 6*d. net.*

This excellent volume has been written principally for use in public and secondary schools. The aim of the authors has been "to present a clear and logical account of geographical phenomena," and an attempt has been made "to show the relations that exist between man and the chief phenomena of nature." The book is divided into five parts which cover the whole range of physical geography, and each part is complete in itself. Numerous questions from recent examination papers are given at the end of each chapter, and the book contains many diagrams. It may be recommended with confidence to teachers and students.

*A Human Geography of the British Isles.* By Leonard B. Cundall, B.Sc., F.R.G.S. Thomas Nelson and Sons. *Price* 5*s.*

The author of this book was in the meteorological section of the Royal Engineers. This probably accounts for many details in the opening chapter on climate and weather which are not usually found in school and college text-books, *e.g.* methods of computing heights from pressures, reduction of barometric readings, and calibration of the Dines meteorograph.

Following the section cited are chapters on Plants and Animals, Textile Industries, Tides and Fisheries, Minerals, Distribution of Population, and Physical Features. Six chapters are devoted to England but only one each to Scotland and Ireland. The book concludes with sections on the development of communications in Britain, and trade.

Useful questions, and still more useful references, are given at the close of each chapter.

*First Lessons in Geography.* By E. Marsden and T. Alford Smith. With Maps and Illustrations. London: Macmillan and Co., 1920. *Price* 3*s.* 6*d.*

In the first section natural phenomena are treated very simply, and wherever possible illustrations are drawn from the daily round of life. The second part gives a concise account of the British Isles and the Continents, and the various chapters are supplied with exercises. Prominence is given to the importance of climate in dealing with the various countries.

*Géographie Mathématique.* By H. Bouasse, Professeur à la Faculté des Sciences de Toulouse. Paris: Librairie Delagrave, 1919.

This work is divided into four sections: Topographic Survey, including chain, compass, and photographic surveying, underground and hydrographic survey; Geographical co-ordinates and their representation on the plane, including astronomical matter, methods of dead reckoning, map projections: the Figure of the Earth, including geodetic theory and geodetic survey; Gravity and weight, including gravitational and relevant geodetic theory and geodetic levelling. The arrangement has a definite relation to the method of treatment, and although it involves a certain amount of detachment and repetition, it has certain obvious advantages. These become all the more important in view of the fact that the book carries on a crusade against overtheorisation and maintains an attitude of criticism.

The most striking feature of the work arises from this critical attitude. That which makes it well worth reading and thoroughly enjoyable is a "vivacity of style and energy of affirmation," to which the publisher devotes a note for the

assurance of such as may think the criticisms have a particular or personal aim. It is comforting to find a treatise so dealing with geodesy as to insist on keeping the wood in view in spite of the trees, and on confining the flights of theory and speculation within the limits of a definite relation to practical reality. The appendices, on the law of gravitation and Laplace's law of relativity, and on theories of cosmogony, are, in this respect, extremely interesting. There is, however, in spite of the feeling that the tendency of the book is to produce a very sane and balanced outlook, the doubt at the back of one's mind as to whether a text-book is suited to the development of such criticism. Limitations of space involve selection, and inclusion of criticism involves exclusion of other things. Still, the justification of new works on old subjects is the need for improvement, and without the stimulus implied by the criticisms the book would not, and ought not to, have appeared.

We have not succeeded in detecting any errors of note. In a French work appreciation of the plane-table as an accurate surveying instrument is not to be expected, but it is disappointing to find that while photographic methods are fully treated, they are treated without enthusiasm, and that the new sphere of aeroplane survey is neglected. There is a chapter, all too short, on classical geodetic surveys, but here, as elsewhere, the author confines himself to French history and practice. Without incurring the imputation of being insular one may suggest that he would have found valuable material in the work of the Ordnance Survey and of the Survey of India; and some notice of the trigonometrical connection between France and England, of the newer measurements of great terrestrial arcs, and of international work in general would not have been out of place.

*Meteorology—An Introductory Treatise.* By A. E. M. Geddes, O.B.E., M.A., D.Sc. London: Blackie and Son, 1921. *Price* 21*s.*

Of recent years there have been many contributions to Meteorological Science, but for the general reader, or the elementary student, there is no book which gives an adequate presentation of present-day knowledge except Mr. Lempfert's recent book. Dr. Geddes's book is more ambitious in scope and goes into greater detail, and can be confidently recommended to the student who wishes to acquire a working knowledge of the processes of the weather. Dr. Geddes's experience as one of the senior officers of the Meteorological Section R.E. in France during the War admirably fitted him for the task he undertook in producing a treatise on meteorology, and the mind of the careful teacher is displayed throughout the book. The Introductory chapter gives an interesting account of the progress of the science from ancient times onwards, and also refers briefly to the importance of a State weather service in peace and war. It is properly pointed out that before a State service can be utilised there is required a public which is educated to understand the information made available by the professional meteorologist. The chapter concludes with an account of the statistical methods which are now employed in dealing with masses of meteorological observations, and explains in an easy way the use of correlation coefficients by means of which much progress has been made in the application of meteorology.

Hitherto most works on meteorology have considered separately *climatology*, or the study of the main characteristics of the climate of the earth, and *meteorology*, or the science of weather processes, and methods of observation. Dr. Geddes does not observe this classification. For example, his chapter on "Pressure and the General Circulation of the Atmosphere" discusses (*a*) means of observation, and the distribution of pressure over the globe; (*b*) the means of observation, and general character of winds produced by differences of pressure; and (*c*) the general

circulation of the earth's atmosphere. The plan of the book is consistent, and Dr. Geddes has adopted a logical method of presenting his subject to a student. The book will form a wholly admirable text-book for use in schools and universities, both from the point of view of the teacher and the student. But the general reader may be confused, and possibly annoyed, by the constant transference from the consideration of methods of observation to the discussion and explanation of the facts observed.

For a member of the general public, perhaps the most important matter is that he should have a sufficient understanding of the weather map to make use of the weather information published in the daily newspapers, and the twenty-five pages devoted to the subject of weather forecasting might well have been amplified instead of being relegated to a portion of the final chapter—even at the expense of some repetition, and of disturbing the logical sequence of the book.

A large number of admirable illustrations of the principal meteorological instruments is given, and the photographs of clouds and coloured pictures of optical phenomena deserve special mention. The whole "get up" of the book is good, and it deserves a place in every scientific library.

## BOOKS RECEIVED.

### EUROPE.

*Industrial Edinburgh.* A book issued by the Edinburgh Society for the Promotion of Trade: In Furtherance of the Movement in Favour of Developing New Industries and Extending Existing Industries in Edinburgh, Leith, and the Lothians. Edited by Thos. Stephenson, F.R.S., Edinburgh. Demy 8vo. Pp. 208. Published by The Edinburgh Society for the Promotion of Trade in conjunction with The Edinburgh Chamber of Commerce and Manufactures. 1921.

*The West Riding of Yorkshire.* By Bernard Hobson, M.Sc., F.G.S. Crown 8vo. Pp. xii + 188. Cambridge: University Press, 1921. *Price* 4*s.* 6*d. net.*

*Géologie de la France.* Par L. de Launay. 8vo. Pp. 502. Paris: Armand Colin, 1921. *Prix* 40 *fr.*

*A Picture of Modern Spain: Men and Music.* By J. B. Trend. Demy 8vo. Pp. viii + 270. London: Constable and Co., Ltd., 1921. *Price* 15*s.*

*Svenska Turistföreningens Arsskrift*, 1921. Stockholm, 1921.

*Dantzig and Poland.* By Prof. Simon Askenazy. Translated from the Original Polish by Wm. J. Rose. 8vo. Pp. 132. London: George Allen and Unwin, Ltd., 1921. *Price* 8*s.* 6*d.*

*In Denikin's Russia and the Caucasus*, 1919-1920. By C. E. Bechhofer. With an Introduction by Alfred E. Zimmern. With 2 maps. 8vo. Pp. xiii + 324. London: W. Collins Sons and Co., Ltd., 1921. *Price* 10*s.* 6*d.*

*Statistical Abstract for the United Kingdom from* 1905 *to* 1919. London, 1921. *Price* 3*s.* 6*d.*

### ASIA.

*La Question d'Orient depuis ses origines jusqu'à la Paix de Sèvres* (1920). Par Edouard Driault. Eighth Edition. 8vo. Pp. 488. Paris: Felix Alcan, 1921. *Price* 21 *fr.*

*A Painter in Palestine: Being an Impromptu Pilgrimage through the Holy Land with Bible and Sketch-book.* By Donald Maxwell. Crown 8vo. Pp. xv + 164. London: John Lane, 1921. *Price* 6*s.* 6*d. net.*

*A Manual on the Turanians and Pan-Turanianism.* 8vo. Pp. 256. London: Admiralty, 1921. *Price 7s. 6d. net.*

*Shells from the Sands of Bombay: Being My Recollections and Reminiscences,* 1860-1875. By Sir D. E. Wacha. 8vo. Pp. 781. Bombay: Chronicle Press 1920. *Price Rs. 3.*

*Tombs, Tents, and Gardens: Being an Account of our Visit to Delhi and Agra,* 1920. By Miss D. S. Bastavala. 8vo. Pp. 114. Bombay, 1920.

*The Pathan Borderland: An Account of the Country and People on and beyond the Indian Frontier from Chitral to Dera Ismail Khan.* By C. M. Enriquez. Second Edition. 8vo. Pp. 193. Calcutta: Thacker, Spink and Co., 1921. *Price Rs. 6.*

*China, Japan, and Korea.* By J. O. P. Bland. Illustrated. 8vo. Pp. x + 327. London: Wm. Heinemann, 1921. *Price 21s. net.*

*Japanese Impressions, with a Note on Confucius.* Translated from the French of Paul-Louis Couchoud. By Frances Rumsey. With a Preface by Anatole France. 8vo. Pp. xvii + 155. London: John Lane, 1921. *Price 7s. 6d.*

*My Mission in Siberia: A Vindication.* By Kate Marsden, F.R.G.S. Crown 8vo. Pp. 54. London: Edward Stanford. *Price 3s. net.*

## AFRICA.

*Sun, Sand, and Somals: Leaves from the Note-book of a District Commissioner in British Somaliland.* By Major H. Rayne, M.B.E., M.C. Demy 8vo. Pp. 223. London: H. F. and G. Witherby, 1921. *Price 12s. 6d.*

*The South and East African Year-Book and Guide for 1921 with Atlas.* Edited by A. S. Brown, F.R.M.S., and G. G. Brown, F.R.G.S. 8vo. Pp. 794. London: Union Castle Mail Steamship Co., Ltd., 1921. *Price 5s.*

*A Handbook of Kenya Colony (British East Africa) and the Kenya Protectorate (Protectorate of Zanzibar).* London: Admiralty. *Price 7s. 6d.*

*A Handbook of the Uganda Protectorate.* London: Admiralty. *Price 7s. 6d.*

*Official Year-Book of the Union of South Africa.* Pp. 975. Pretoria, 1920. *Price 5s.*

## AMERICA.

*The Province of New Brunswick, Canada: Its Natural Resources, Developed and Undeveloped.* Prepared under the direction of Mr. F. C. C. Lynch, Superintendent Natural Resources Intelligence Branch. Pp. 92. Ottawa, 1921.

*Heaton's Annual: The Commercial Handbook of Canada and Boards of Trade Register,* 1921. Crown 8vo. Pp. 526. Toronto: Heaton's Agency, 1921. *Price $2.*

*Chicago Harbour Commission Report,* 1909. Demy 8vo. Pp. 383. Chicago, March 1909. [*Presented by Professor J. Paul Goode.*

*Memorias Antiguas Historiales del Peru.* By Fernando Montesinos. Translated and edited by Philip Ainsworth Means, M.A. 8vo. Pp. li + 174. London: Printed for the Hakluyt Society, 1920.

*Blanco y Colorado: Old Days among the Gauchos of Uruguay.* By William C. Tetley. Crown 8vo. Pp. 208. Bedford: F. R. Hockliffe, 1921.

## AUSTRALIA.

*Official Year-Book of the Commonwealth of Australia.* Melbourne, 1920.

*Official Year-Book of New South Wales,* 1919. Pp. 665. Sydney, 1920. *Price 2s. 6d.*

*Pocket Year-Book of Western Australia,* 1921. Perth, 1921.

## POLAR REGIONS.

*The Lands of Silence: A History of Arctic and Antarctic Exploration.* By Sir CLEMENTS R. MARKHAM. With a Preface by Dr. F. H. H. GUILLEMARD. Royal 8vo. Pp. 539. Cambridge: University Press, 1921. *Price* 45*s.*

## BIOGRAPHY.

*The Memoirs of Count Witte.* Translated from the original Russian Manuscript and edited by ABRAHAM YARMOLINSKY. Demy 8vo. Pp. xi + 445. London: William Heinemann, 1921. *Price* 21*s. net.*

*The Ordeal of a Diplomat.* By C. NABOKOFF. Demy 8vo. Pp. 320. London: Duckworth and Co., 1921. *Price* 15*s. net.*

## GENERAL.

*The Diary of a Yeomanry M.O.—Egypt, Gallipoli, Palestine, and Italy.* By Captain O. TEICHMAN, D.S.O., M.C. 8vo. Pp. 283. London: T. Fisher Unwin, Ltd., 1921. *Price* 12*s.* 6*d.*

*The Geography of Strabo.* By H. C. HAMILTON and W. FALCONER, M.A. 8vo. Vol. I., pp. 519; Vol. II., pp. 410; Vol. III., pp. 422. London: George Bell and Sons, 1889. [*Presented by Dr. W. S. Bruce.*

*Ice-Work, Present and Past.* By T. G. BONNEY, D.Sc. 8vo. Pp. 295. London: Kegan Paul, Trench, Trubner and Co., Ltd., 1896. [*Presented by Dr. W. S. Bruce.*

*A Book of Whales.* By F. E. BEDDARD, M.A., F.R.S. 8vo. Pp. 320. London: John Murray, 1900. [*Presented by Dr. W. S. Bruce.*

*Nature Notes for Ocean Voyagers.* By Capt. A. CARPENTER, R.N., D.S.O., and Capt. D. WILSON-BARKER, R.N.R. 8vo. Pp. 190. London: Charles Griffin and Co., Ltd., 1915. *Price* 5*s. net.* [*Presented by Dr. W. S. Bruce.*

*Karl Andree's Geographie des Welthandels: eine Wirtschaftsgeographische Schilderung der Erde.* Vollständig neu bearbeitet von einer Anzahl von Fachmännern und herausgegeben von Dr. FRANZ HEIDERICH und Dr. ROBERT SIEGER. Vol. iv. Royal 8vo. Pp. xv + 680. Wien: L. W. Seidel und Sohn, 1921. *Preis M.* 90.

*Meteorology.* An Introductory Treatise. By A. E. M. GEDDES, O.B.E., M.A., D.Sc. 8vo. Pp. xx + 390. London: Blackie and Son, Ltd., 1921. *Price* 21*s.*

*Agricultural Meteorology.* The Effect of Weather on Crops. By J. WARREN SMITH, B.S.M.S. 8vo. Pp. xxiv + 304. New York: 1920. *Price* 13*s.*

*A Manual of Seismology.* By CHARLES DAVISON, Sc.D. Cambridge Geological Series. Demy 8vo. Pp. xii + 256. Cambridge: University Press, 1921. *Price* 21*s. net.*

*A Text-Book of Oceanography.* By J. T. JENKINS, D.Sc., Ph.D. 8vo. Pp. vi + 206. London: Constable and Co., Ltd., 1921. *Price* 15*s.* 6*d.*

*The Elements of Theoretical and Descriptive Astronomy.* By CHARLES J. WHITE, A.M. Eighth Edition. Revised by PAUL P. BLACKBURN. 8vo. Pp. 319. London: Chapman and Hall, 1920. *Price* 17*s.* 6*d.*

*Gujarati Self-Taught by the Natural Method.* With Phonetic Pronunciation, Thimm's System. By N. M. DHRUVA. 8vo. Pp. 113. London: E. Marlborough and Co., 1921. *Price* 4*s.* 6*d.*

*Annual Colonial Reports*—Bechuanaland Protectorate (1057); Ashanti (1058); Bahamas (1059); British Solomon Islands (1060); Seychelles (1061); St. Vincent (1063); Mauritius (1062); Nigeria (1064); Sierra Leone (1065); Jamaica (1067);

British Guiana (1068); Trinidad and Tobago (1069); Gold Coast (1066); Hong Kong (1071); British Honduras (1070). London: 1921.

*Report of the Progress of the Ordnance Survey to the 31st March* 1921. London: 1921. *Price* 1s. *net.*

## EDUCATIONAL.

*Maps: their History, Characteristics, and Uses.* A Handbook for Teachers. By Sir Herbert George Fordham. 8vo. Pp. xii + 83. Cambridge: University Press, 1921. *Price* 7s. 6d.

*The Study of Geological Maps.* By Gertrude L. Elles, D.Sc. Cambridge Geological Series. Royal 8vo. Pp. viii + 74. Cambridge: University Press, 1921. *Price* 12s. *net.*

*Cambridge Geographical Readers.* IV. *Western Europe and the Mediterranean Region.* Edited by G. F. Bosworth, F.R.G.S. Crown 8vo. Pp. xii + 232. Cambridge: University Press, 1921. *Price* 4s. 6d.

*Elementary Studies in Geography and History: Lands beyond the Channel.* By Sir H. J. Mackinder. Eleventh Edition. 8vo. Pp. 304. London: George Philip and Son, Ltd., 1921. *Price* 3s. 6d.

*The Groundwork of Modern Geography.* An Introduction to the Science of Geography. By Albert Wilmore, D.Sc. (Lond.), F.G.S. Crown 8vo. Pp. xv + 396. London: G. Bell and Sons, Ltd., 1920. *Price* 6s.

*Geography: Physical, Economic, Regional.* By James F. Chamberlain, Ed.B., S.B. 210 Illustrations. 8vo. Pp. xviii + 509. London: J. B. Lippincott Co., 1921. *Price* 15s.

*Europe of To-Day.* By J. F. Unstead, M.A., D.Sc. 8vo. Pp. 248. London: Sidgwick and Jackson, Ltd., 1921. *Price* 4s. *net.*

*A Sketch-Map Geography.* A Text Book of World and Regional Geography. By E. G. R. Taylor, B.Sc. 8vo. Pp. viii + 147. London: Methuen and Co., 1921. *Price* 4s.

*A Graded Course of Geography.* Book I.: *First Year.* Globe, Maps, Climate and Vegetation, South America. By E. S. Price. Royal 8vo. Pp. 63. London: George Philip and Son, Ltd. *Price* 2s.

*A Little Book on Map Projection.* By Mary Adams (Wm. Garnett, M.A., D.C.L.) 8vo. Pp. 112. New and Revised Edition. London: George Philip and Son, Ltd., 1921. *Price* 5s. 6d.

*Map Reading.* By G. H. C. Dale. With an Introduction by Lieut.-Col. E. M. Jack, C.M.G. 8vo. Pp. 170. Toronto: 1921. *Price* 7s. 6d.

*Publishers forwarding books for review will greatly oblige by marking the* **price** *in clear figures, especially in the case of foreign books.*

---

## NEW MAPS AND ATLASES.

### EUROPE.

**ORDNANCE SURVEY OF SCOTLAND.**—Publications issued from 1st January to 31st March 1921:—

One-inch Maps. Printed in Colours. Price unmounted 2s. each. Tourist Map—Scott's Country.

Six-inch and Larger Scale Maps. Six-inch Maps (revised).—Quarter-sheets, with contours in red. Price 1s. 6d. each. *Fifeshire.*—(3 SW. and 3A SE.); 3

NE. ; 4 SW. ; 5 NW., SW. ; 6 NE., SW. ; 8 NE. ; 9 NW., SE. ; 12 NW., NE. ; 13 NW. ; 39 SE. ; 40 NW. *Fife and Kinross-shire.*—11 SE. *Kinross-shire.*—17 NW. ; 26 NW. Without contours—*Fifeshire.*—40 SE.

1 : 2500 Scale Maps (revised, with houses stippled and with areas. Price 5s. each. *Argyllshire.*—Sheets **251**—13, 14, 15, 16 ; **252**—13, 14. **Roxburghshire.*—Sheets **N 3**—3, 12 ; **N 4**—5, 6, 7, 9, 11 ; **N 8**—1, 4, 10, 11, 12, 14, 16 ; **N 9**—5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 ; **N 10**—5, 8, 9, 12, 13, 14, 15 ; **N 11**—5, 6, 10, 13, 14, 15 ; **N 12**—1, 3, 4, 5, 7, 8, 11, 12, 15, 16 ; **N 13**—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16 ; **N 14**—1, 3 ; **N 18**—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 ; **N 19**—1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 13, 14, 15, 16 ; **N 20**—5, 9, 13 ; **N 24**—1, 2, 3, 4, 5, 8 ; **N 25**—1, 2, 3, 4, 5, 11 ; **N 29**—4 ; **N 35**—12, 13, 15. Price 3s. each. **Roxburghshire.*—Sheets **4**—12, 16 ; **11**—2, 11.

* Revised on new meridian, the plan numerals therefore differ from those of the previous Revision.

**GEOLOGICAL SURVEY OF SCOTLAND.**—Publications issued from 1st January to 31st March 1921 :—

Quarter-inch Map. Printed in colours. Sheet **6**—Caithness (part of), Thurso and Wick. Price 2s. 6d. net. Sheet **13**—Argyllshire (part of), Knapdale, Jura, Islay and Colonsay. Price 2s. 6d. net.

One-inch Map. Colour printed ; solid and drift editions. Sheet **53**—Ben Nevis, Fort William and Glen Coe. Price 2s. 6d. net. Sheet **81**—Ross-shire (part of), Inverness-shire (Islands of Raasay and Rona and part of NE. coast of Skye), Applecross, Shieldaig, Stromeferry, Portree Bay. Price 2s. 6d. net.

The solid is shown in colours, the drift by symbols in black.

*N.B.*—The hand-coloured edition of Sheet 81 is now withdrawn from sale.

Six-inch Maps. With geological lines. Price uncoloured 1s. 6d. each. *Dumbartonshire (Det.)*—34 NW. *Edinburghshire.*—10 NE., SW. (SE. and 16 NE.). *Lanarkshire.*—3 SW. (5 SE. and 10A NE.) ; 8 SE. ; 9 NW. (NE. and 9A NW.) ; 11 SE. ; 12 NW., NE., SW., SE. ; 13 NW., NE. ; 17 NW., SE. ; 19 SW. ; 20 NE. ; 23 NE., SE. ; 24 NW., NE. ; 25 NE. ; 31 NE. *Linlithgowshire.*—5 NW., NE., SW., SE. ; 8 NE. ; 9 NW. ; 11 SE. ; 12 SW. *Renfrewshire.*—8 NW., NE., SW., SE. ; 12 NW. *Stirlingshire.*—24 SE. ; 28 NE. ; 30 NW., NE., SW., SE. ; 31 NW., SW. ; 32 NW. ; 35 NW., NE., SW., SE. ; 36 NW. Revised Sheets. *Linlithgowshire.*—(7 NW. and SW.) ; 9 NE., SE. ; 10 NW., SW.

**ADMIRALTY CHARTS.**

**Scotland, North-East Coast.**—Cromarty Firth, April 1921. No. 2167. Price 3s.

" " " Cromarty Firth Anchorage, May 1921. No. 3110. Price 4s.

*Admiralty, London.*

**BARTHOLOMEW'S HALF-INCH TO MILE MAP OF SCOTLAND.**

**Sheet 1. Wigtown, etc.** Orographical colouring. New Edition, 1921.

**Sheet 25. Dornoch, Lairg, etc.** Orographical colouring. New Edition, 1921.

Price each sheet, paper, 1s. 6d. net ; mounted on cloth, 3s.

*John Bartholomew and Son, Ltd., Edinburgh.*

**PEDESTRIAN'S MAP OF EDINBURGH DISTRICT AND PENTLAND HILLS,** 1¼ inches to 1 mile. Showing Public Roads and Footpaths. New Edition, 1921.

Price 2s. net. paper ; 3s. 6d. net cloth.

*John Bartholomew and Son, Ltd., Edinburgh.*

**POST OFFICE PLAN OF EDINBURGH AND LEITH, 1921.** Price 3s. 6d. net.
The plan has been extended to 38 inches by 48 inches.
*John Bartholomew and Son, Ltd., Edinburgh.*

**W. AND A. K. JOHNSTON'S NEW MAP OF EDINBURGH.**—3 inches to 1 mile.
Price 2s. 6d. paper; 5s. mounted.
*W. and A. K. Johnston, Ltd., Edinburgh.*

**BARTHOLOMEW'S TOURIST'S MAP OF ENGLAND AND WALES.** 10 miles to an inch. New Edition, 1921.
Price 5s. net, mounted on cloth.
*John Bartholomew and Son, Ltd., Edinburgh.*

**BARTHOLOMEW'S QUARTER-INCH TO MILE MAP OF IRELAND.**
**Sheet 5. Killarney and Cork District.** Orographical colouring. New Edition, 1921. Price 1s. 6d. net paper; 3s. net cloth.
*John Bartholomew and Son, Ltd., Edinburgh.*

**CARTA STRADALE D'ITALIA**, speciale per Automobilisti, Ciclisti e Turisti. Scale 1 : 250,000. Sheets 14, 16, 17, and 20. Price 2 l. each.
*Istituto Italiano d'Arti Grafiche, Editore, Bergamo.*

**THE NAVAL WAR IN THE NORTH SEA.**—Compiled by Albert Close, showing principal mine-fields, Zepps. destroyed, position of German submarines sunk, and Naval Battles. Price 25s. net.
*Edward Stanford, Ltd., London.*

**POLAND AND GALICIA.**—Maps prepared by Naval Staff I.D.

**Poland.** 1 : 3,000,000.—I. Administration; II. Languages, 1900 and 1897; III. Languages, 1910 and 1913; IV. Language according to most detailed information; VI. Germans and White Russians; VII. Jews; VIII. Lithuanians, Little Russians and Czechs; IX. Poles, excluding Jews; X. Religions in 1900 (1897); XI. Religions in 1910 (1913); XII. Density; XIII. Natural Increase.

**Prussian Poland.** 1 : 600,000.—XIV. Languages.

**Austrian Silesia.** 1 : 200,000.—XV. Languages.

**Western Galicia.** 1 : 432,000.—XVI. Aa. Languages; Ab. Religions.

**Eastern Galicia.** 1 : 432,000.—XVI. Ba. Languages; Bb. Religions; Bc. Roman Catholics and Uniates.

**Governments of Siedlce and Lublin showing parts made into Government of Chelm.** XVII*a*. Religions; XVII*b*. Languages; XVII*c*. Religions, from Dziewulski; XVII*d*. Religions, comparing different authorities; XVII*e*. Religions, showing absolute majorities, from Dziewulski; XVII*f*. Religions, showing absolute majorities, from Warsaw Statistical Committee, 1909; XVII*g*. Religions, showing relative majorities, from Dziewulski, 1906; XVII*h*. Religions, showing relative majorities, from figures of Warsaw Statistical Committee, 1909; XVII*i*. Jews, from Warsaw Statistical Committee, 1909; XVII*j*. Protestants, from Warsaw Statistical Committee, 1909.

**Poland.** 1 : 3,000,000.—XXIII. Activities of Prussian Colonisation Committee; XXVI. Railways and Waterways.

**Ancient Lands of Poland.** XXVII. Hypsometrical Map.

**Prussian Poland.** Language Map, from Festschrift des Königlich. Preussischen Stat. Bureaus, 1905.

**PHILIP'S IMPERIAL SERIES.**

**Czecho-Slovakia and Austria and Hungary.**—1 : 500,000.

Price 5s. net in cloth case.

*George Philip and Son, Ltd., London.*

**BACON'S NEW SCHOOL WALL MAP OF EUROPE.**—On cloth, price 7s. 6d. net.

*G. W. Bacon and Co., Ltd., London.*

## ASIA.

**INTERNATIONAL MAP OF THE WORLD.**—Scale 1 : 1,000,000.

N-C 43. **Cape Comorin.** Published 1919. Price 1 rupee.

N-C 44. **Trichinopoly.** Published 1918. 1 rupee.

N-D 43. **Mysore.** Published 1918. Price 1 rupee.

*Survey of India Office, Calcutta.*

**INDIA.**—Showing railways open and under construction. March 1919. Price 1 rupee 8 annas.

**INDIA AND ADJACENT COUNTRIES.**—Scale 1 : 1,000,000. Price 1 rupee each. Sheet 4 (1) Layered ; (2) Political, 1918. Sheet 16 (1) Layered ; (2) Political, 1918. Sheet 40 (1) Layered ; (2) Political, 1919. Sheet 41 (2) Political, 1919. Sheet 42 (1) Layered, 1918. Sheet 44 (1) Layered ; (2) Political, 1919. Sheet 55 (1) Layered ; (2) Political, 1918. Sheet 71 (1) Layered ; (2) Political, 1919. Sheet 72 (1) Layered ; (2) Political, 1918. Sheet 74 (1) Layered ; (2) Political, 1918. Sheet 77 (1) Layered ; (2) Political, 1919. Sheet 82 (1) Layered ; (2) Political, 1919. Sheet 85 and part 86 (2) Political, 1919. *Survey of India Office, Calcutta.*

**HALF-INCH SURVEY MAP OF INDIA.**—Price each sheet 1 rupee, or with boundaries coloured 1 rupee 2 annas. Sheets—38-L SE., 43-F SW., 44-M NW., 44-M SW., 44-M SE., 46-K NW., 46-K NE., 46-K SE., 46-O NW., 46-O NE., 46-P NW., 46-P NE., 46-P SE., 48-K SE., 48-P NW., 55-G SE., 55-K SW., 56-C SE., 56-K NW., 56-K NE., 56-K SW., 57-H NW., 57-L NW., 57-L NE., 58-C NE., 58-C SE., 66-D NW., 83-B/NE., 83-D/NE., 92-F/NW., 92-F/NE., 92-F/SE., 94-F/NW., 94-F SW.

*Survey of India Office, Calcutta.*

**QUARTER-INCH SURVEY MAP OF INDIA.**—Price each sheet 1 rupee, or with boundaries coloured 1 rupee 2 annas. Sheets 55-I and 78-O. Both layered and political. *Survey of India Office, Calcutta.*

## AFRICA.

**EGYPT.**—Scale 1 : 100,000. Sheets 19-R, 17-R, 16-R, 18-R, 1920. Price per sheet, unmounted 100 millièmes, mounted 150 millièmes. *Survey of Egypt.*

**CENTRAL AND SOUTH AFRICA. 1921.** Price 3s.

*Offices of "South Africa," London.*

**GOLD COAST.**—Scale 1:125,000. Price 5s. per sheet.

| | | | |
|---|---|---|---|
| 72-J 4. | **Wiawoso.** | 72-K 4. | **Fumso.** |
| 72-L 1. | **Abetife.** | 72-P 2. | **Asankrangwa.** |
| 72-P 4. | **Prestea.** | 72-Q 1. | **Dunkwa.** |
| 72-Q 2. | **Prahsu.** | 72-Q 3. | **Tarquah.** |
| 72-Q 4. | **Cape Coast.** | 72-R 1. | **Nsaba.** |
| 72-R 3 and 4. | **Winnebah and Nianyano.** | | |
| 72-V 2. | **Axim.** | 72-W 1. | **Seccondee.** |
| 73-G 1. | **Wope.** | | |

*Director of Surveys, Gold Coast.*

## NORTH AMERICA.

**CANADA, STANDARD TOPOGRAPHIC MAP.**—Scale 1 : 500,000. Sheet 10 and part of 33, 1920. *Department of Interior, Canada.*

## SOUTH AMERICA.

**MAPA ECOLÓGICO DE VENEZUELA.** By H. Pittier, 1920.
*Litografia del Comercio, Caracas.*

This is a new economic map of Venezuela. The various features of cultivation are shown by distinctive colours, and mineral products are indicated by letters and signs. The somewhat crude method of reproduction scarcely does justice to the labour that must have been spent in the preparation of the map. Yet even as it is, it is probably the best economic map of the state we have. A handbook accompanies the map.

## EDUCATIONAL AND GENERAL.

**GEOLOGICAL MAP OF THE WORLD.**—Compiled by Henry B. Milner, M.A., F.G.S., F.R.G.S. 1921. On Mercator's Projection in one sheet, 45 in. × 28 in. Price 25s. *Edward Stanford, Ltd., London.*

**MACMILLAN'S HISTORICAL ATLAS OF MODERN EUROPE.** Edited by F. J. C. Hearnshaw. Price 6s. net. *Macmillan and Co., Ltd., London.*

**HANDY ROYAL ATLAS.** By G. H. Johnston, F.R.G.S. 1921. Price £3, 10s.
*W. and A. K. Johnston, Ltd., Edinburgh.*

In these days of political change the map-maker's task is no easy one. Boundaries are laid down in such a tentative way that almost before the ink is dry on the paper the map is out of date. In a large atlas, too, a considerable time must elapse between the actual preparation of each separate map and its publication in atlas form. In the new edition of the *Handy Royal Atlas* an attempt has been made to keep abreast of the recent territorial changes; but, probably for the reasons mentioned above, there are certain minor political settlements which have not been indicated. Apart from boundary changes, however, there are a few points that call for revision. We note, for instance, that on the South Polar Chart a tongue of land is shown where the drift of the "Endurance" should be indicated, and that on plate 27 the railway connecting Bangkok with the principal towns of the Malay States is not shown.

As a whole the appearance of the atlas is pleasing, for it is clearly printed on good paper.

**L'ESTRANGE'S PROGRESSIVE COURSE OF COMPARATIVE GEOGRAPHY.—Part III. Europe.** 9th Edition. Price 2s. 6d. net.
*George Philip and Son, Ltd., London.*

**PHILIP'S NEW SCHOOL ATLAS OF COMPARATIVE GEOGRAPHY.** New Edition, 1921. Price 3s. 6d. net. *George Philip and Son, Ltd., London.*

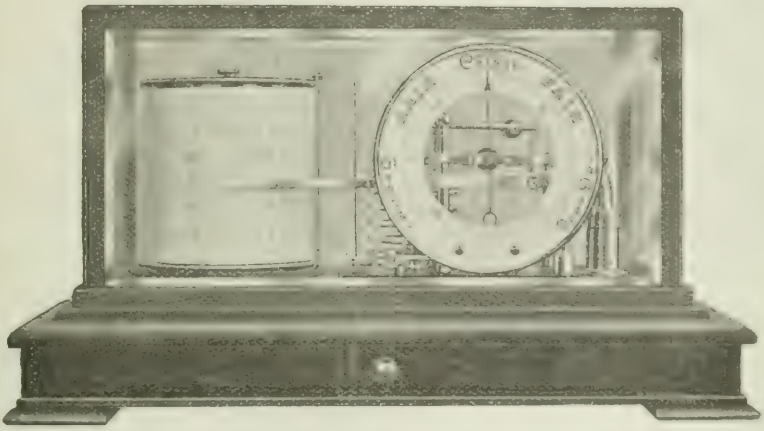
**PHILIP'S SCHOOL ATLAS.**—New Edition, sixteen maps. Price 7d. net.
*George Philip and Son, Ltd., London.*

**BACON'S PHYSICAL ATLAS, "THE MAP AND ITS STORY."**—Price 2s. 6d. net.
*G. W. Bacon and Co., Ltd., London.*

# THE · BAROGRAPH

## OR

# AUTOMATIC BAROMETER



This instrument entirely supersedes the ordinary type of Barometer. It does all a Barometer does, and more, because it records the movements of the Barometer in a durable and easily understandable manner. It can be made in any style of frame and species of wood so as to harmonise with any style of furnishing. Prices on application

---

ESTABLISHED 1871

## JAMES BROWN, OPTICIAN

### 131 BUCHANAN STREET

## GLASGOW

'Phone: 4882 Central

Telegrams:
'Scorer, Glasgow'

# ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.

## PATRON.

HIS MAJESTY THE KING.

### COUNCIL

(*Elected 11th November* 1920.)

**President.**

THE HON. LORD SALVESEN.

**Vice-Presidents.**

His Grace the DUKE OF HAMILTON.
His Grace the DUKE OF MONTROSE, K.T.
His Grace the DUKE OF BUCCLEUCH AND QUEENSBERRY, K.T.
The Most Hon. the MARQUIS OF ABERDEEN, K.T., G.C.M.G., G.C.V.O., LL.D.
The Right Hon. the EARL OF ROSEBERY AND MIDLOTHIAN, K.G., K.T., D.C.L., LL.D., F.R.S.
The Right Hon. LORD SALTOUN.
The Right Hon. LORD SEMPILL.
The Right Hon. LORD BALFOUR OF BURLEIGH, K.T., G.C.M.G., G.C.V.O., LL.D.
The Right Hon. LORD ELPHINSTONE.
The Right Hon. LORD REAY, G.C.S.I., G.C.I.E., D.C.L., LL.D.
Brig.-Gen. the Right Hon. LORD PLAYFAIR, C.V.O.
The Right Hon. LORD STRATHCLYDE, G.B.E., LL.D.
PAUL ROTTENBURG, LL.D.
ROBERT S. ALLAN, LL.D.
JOHN HORNE, LL.D., F.R.S.
SIR J. ALFRED EWING, K.C.B., LL.D.
COLONEL SIR DUNCAN A. JOHNSTON, R.E., K.C.M.G., C.B.
PROFESSOR J. W. GREGORY, F.R.S.

**Chairman of Council.**

H. M. CADELL, B.Sc.

**Chairmen of Centres.**

*Glasgow* . A. ERNEST MAYLARD, M.B., B.S., F.R.S.E.
*Vice-Chairman.*—F. L. M. MOIR.

*Dundee* . J. C. BUIST.

*Aberdeen* . The Very Rev. SIR G. ADAM SMITH, D.D., LL.D., *Principal of Aberdeen University.*

**Ordinary Members of Council.**

JAMES MACDONALD, W.S.
W. B. WILSON, W.S.
PROFESSOR J. Y. SIMPSON, D.Sc., F.R.S.E.
W. B. BLAIKIE, LL.D., F.R.S.E.
PROFESSOR T. HUDSON BEARE, B.A., B.Sc.
W. G. BURN-MURDOCH, J.P.
W. L. CALDERWOOD, F.R.S.E.
HARRY R. G. INGLIS, F.R.S.G.S.
PROFESSOR T. J. JEHU, M.A., M.D., F.R.S.E.
J. LEIPER GEMMILL, *Glasgow.*
WILLIAM MACKENZIE, *Dundee.*
JOHN CLARKE, *Aberdeen.*
MAJOR LIVINGSTONE BRUCE, M.C.
SIR WILLIAM C. DUNBAR, Bart., C.B.
ROBERT T. SKINNER, M.A., F.R.S.E.
PROF. J. ARTHUR THOMSON, M.A., LL.D., *Aberdeen.*
P. S. BROWN, J.P., *Dundee.*
JOHN MACFARLANE, M.A.
D. F. LOWE, M.A., LL.D.
T. S. MUIR, F.R.S.G.S.
COLONEL WARDLAW RAMSAY.
ANDREW WATT, M.A., F.R.S.E.
MAJOR-GENERAL P. C. DALMAHOY.
JOHN HARRISON, LL.D., O.B.E.
WM. G. BLACK, LL.D., *Glasgow.*
EBENEZER DUNCAN, M.D., *Glasgow.*
A. B. GILROY, *Dundee.*
MAJOR W. H. COLTMAN, *Aberdeen.*
JOHN HORNE, LL.D., F.R.S.
PROFESSOR F. M. CAIRD.
W. R. KERMACK, M.C.
WILLIAM COWAN.
PROFESSOR D. J. MEDLEY, *Glasgow.*
F. L. M. MOIR, *Glasgow.*
H. A. PATTULLO, *Dundee.*
COL. SIR DUNCAN A. JOHNSTON, R.E., K.C.M.G., C.B.

---

**Trustees**—SIR F. GRANT OGILVIE, K.C.B., LL.D.; J. D. MONRO; JAMES CORNWALL; and the Honorary Treasurer or Treasurers, *ex officio.*

**Honorary Treasurer**—JAMES CURRIE, M.A., LL.D., F.R.S.E., Edinburgh.

**Honorary Secretaries**—RALPH RICHARDSON, W.S., F.R.S.E.; CAPTAIN IAN BARTHOLOMEW, M.A., M.C.
*Glasgow:* JOHN W. GOURLAY, C.A. (Local Secretary and Treas.), 124 St. Vincent St.
*Dundee:* JAMES M'WALTER, 10 Reform Street.
*Aberdeen:* R. W. K. BAIN, Hon. F.R.S.G.S., 8 Union Terrace.

**Honorary Editor**—JOHN GUNN, D.Sc.

**Honorary Librarian**—JOHN GUNN, D.Sc.

**Honorary Map-Curator**—JOHN MATHIESON, F.R.S.G.S.

**Auditor**—P. C. ROBERTSON, C.A., M.A.

**Treasurer**—DAVID CALLENDER, C.A.

**Secretary**—GEORGE G. CHISHOLM, M.A., B.Sc.

**Editor**—MARION I. NEWBIGIN, D.Sc.

**Assistant Secretary**—GEORGE WALKER.

---

SOCIETY'S HALL: SYNOD HALL, CASTLE TERRACE, EDINBURGH.
TELEPHONE 1720 CENTRAL. TELEGRAM: GEOGRAPHY, EDINBURGH.

# TROTTER

## *Maker of Spectacles*

## 40 CORDON STREET

## — GLASGOW —

# CAMBRIDGE COUNTY GEOGRAPHIES

***General Editor for Scotland:*** **W. MURISON, M.A.**

*Four new volumes are now ready,* **3s 6d** *net each*

**CAITHNESS AND SUTHERLAND.** By H. F. CAMPBELL, M.A.

**DUMBARTONSHIRE.** By F. MORT, D.Sc.

**ORKNEY AND SHETLAND.** By J. G. MOODIE HEDDLE and T. MAINLAND.

**KIRKCUDBRIGHT AND WIGTOWN.** By W. LEARMONTH.

Each volume of the Series gives an account of the history, antiquities, architecture, natural history, industries, and physical, geographical and general characteristics of the county, and each has two coloured maps, one physical and the other geological, and a large number of illustrations.

---

CAMBRIDGE UNIVERSITY PRESS

FETTER LANE, LONDON, E.C. 4: C. F. CLAY, *Manager*

ESTABLISHED 1845.

**Heating Apparatus and Domestic Hot Water Supplies for Private Houses A SPECIALTY**

**Charles Ritchie & Co., Heating Engineers**

**Qualified Engineers sent to advise on any System of Heating or Hot-Water Supply.**

**Plans and Estimates submitted.**

**ALDINE WORKS**
**TORPHICHEN STREET, EDINBURGH.**

*JUST PUBLISHED.* **5s.**

# A HUMAN GEOGRAPHY OF THE BRITISH ISLES

By LEONARD B. CUNDALL, B.Sc., F.R.G.S.
Lecturer in Geography, The Training College, York

*SPECIAL FEATURES:*—Geographical Conditions affecting Man; Regional Divisions; Distribution of Population; Industries; Communications; Trade and Commerce; Questions from Examination Papers

*Write for Prospectus to—*

**THOMAS NELSON AND SONS, LTD.**
**Educational Dept., PARKSIDE WORKS, EDINBURGH**

# OFFICE SUPPLIES

FROM a Pencil to a full-size Roll Top Desk—from an Ink Pot to a complete Filing System—we supply every conceivable requirement for Office use, and we supply the little things of every day just as well as we do the big instalments.

**WATERSTONS** 35 GEORGE ST., —EDINBURGH—

# LITHOGRAPHY

**MAPS, PLANS, etc., are executed by us in the best style by offset and other processes.**

**We shall be pleased to advise and give prices for best methods of reproduction.**

## GEO. STEWART & CO.

92 GEORGE STREET, EDINBURGH

*(Complete Printing, Binding, and Stationery Works adjoining.)* **Telephone No. 4015 (two lines).**

*When answering this Advertisement, please mention this Magazine.*

# M. BRYCE & SON, LTD.

Cabinetmakers, Upholsterers, and
:: General House Furnishers ::

## 122, 124, and 126 SAUCHIEHALL STREET

TELEPHONE:
409 DOUGLAS

GLASGOW

ESTABLISHED
1845

*THE PREMIER HOUSE FOR CHAIRS OF EASE*

## LOOSE COVERS

We make a feature of these in Cretonnes, Taffetas,
Printed Linens and Chintzes

*We send competent men to estimate and fit, on receipt of*
:: :: *a post card or telephone message* :: ::

**Established for Three-quarters of a Century**

## M. BRYCE & SON, LTD.

122, 124 and 126 SAUCHIEHALL STREET, GLASGOW

# UNION TRANSIT Co.

*Freight Contractors and General Storekeepers, Shipping and Forwarding Agents, Passage and Insurance Brokers, Furniture Removers and Storers, Motor Carriers and Haulage Contractors*

## REMOVALS

Household Goods Packed, Removed, Shipped, or Warehoused. Foreign and Continental Removals a speciality. Estimates covering all Expenses from House to House submitted Free of Charge. **Removals conducted by Motor Vans when desired.**

## STORAGE

We have superior Storage Accommodation for Baggage, Furniture, Musical Instruments, Plate, and other Household Goods. Customers can have their own Separate Room in our Warehouse. **Rates quoted on application for the Storage of all Classes of Goods.**

## EMIGRATION

**Parties intending going Abroad will find it to their advantage to consult us.** Our Emigration Superintendent is always at the service of intending Emigrants for advice on any matters regarding which they may be in doubt, and will be pleased to arrange for the necessary Passports, supply Official Pamphlets, and give all available information.

**We are in a position to quote an inclusive price for the Removal of Furniture and Personal Effects from or to any part of the World, covering the Hire of necessary Furniture Vans or Cases, Cost of Packing, Freight, Insurance, and Delivery at Destination.**

## HOLIDAY TOURS AND CRUISES

We shall be pleased to supply, on application, particulars of an **Ideal Holiday Cruise** to the renowned Resorts of **Portugal, Madeira,** and the **Canary Islands**—THE LAND OF SUNSHINE.

**Passages Booked and Berths Reserved by all the Principal Steamship Lines at Lowest Rates**

## GENERAL SHIPPING

Having Agents at all the Principal Ports, we undertake the Shipping of all classes of Goods, in either Small or Large Consignments, from or to any part of the World. **Through inclusive Freight Rates arranged covering all charges.**

## DISTRIBUTING OR WAREHOUSING

Import Shipments Cleared, Forwarded, Delivered in City, or Stored in our own Warehouses as may be required by our Customers.

**Send us your Endorsed Bill of Lading, together with Disposal Instructions, and we shall relieve you of all trouble**

We are **TRANSPORT SPECIALISTS,** and our combination of facilities enables us to undertake the handling of all classes of Transport Business on the **Best Possible Terms consistent with Efficient Service.**

**Telegrams**
**'TRANSIT, GLASGOW'**

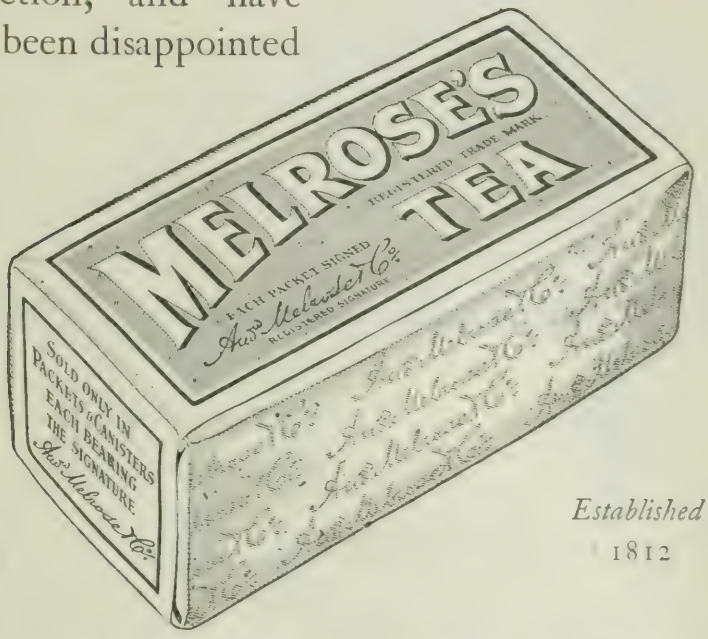
**Telephones** { **(5 Lines) No. 9395 Central.**
**Private Branch Exchange.**

*CHIEF OFFICES*

## 381 ARGYLE STREET, GLASGOW

# Five Generations

have depended on MELROSE'S TEA to give the utmost satisfaction, and have never been disappointed




*Established* 1812

You can be sure of the same satisfaction and of getting a Tea of distinctive character if you make a point of seeing the name on the Packet — MELROSE'S TEA, which is our Trade Mark, and the signature,

Andw Melrose & Co.

From high-class Grocers everywhere.

Prices . . . 2s. to 4s. per lb.

Recommended at 2s. 8d., 3s. and 3s. 4d.

## ANDW MELROSE & CO.

*Tea and Coffee Merchants to the King*

93 GEORGE STREET
117 PRINCES STREET
EDINBURGH

# R. STEWART

*CORNER OF*

BUCHANAN STREET & ARGYLE STREET

GLASGOW

PEARLS DIAMONDS

WATCHES and CLOCKS

TORTOISESHELL IVORY

CUTLERY SILVER PLATE

*ESTABLISHED 1837*

Telephone - - - - - Central 9011

ESTABLISHED 1819

MEET EVERY MUSICAL DEMAND

GLASGOW - 152 BUCHANAN STREET

EDINBURGH - 27 GEORGE STREET

AND AT

ABERDEEN PAISLEY GREENOCK

ARBROATH PERTH DUNDEE

# RENOVATION OF DECAYED STONEWORK

## A SPECIALTY

*Work already carried out at the following—*

**NATIONAL BANK BUILDINGS**

ALLOA, STIRLING, DUNDEE, BERWICK-ON-TWEED, CUPAR and KIRRIEMUIR

**IN EDINBURGH AT**

MERCHANTS' HALL, STOCK EXCHANGE, and N. B. R. STATION HOTEL

# ROBERT GRAHAM

*SLATER, GLAZIER*
*and LEADWORKER*

45 CASTLE STREET

AND

3 EYRE TERRACE

EDINBURGH

*TELEPHONE - - - - CENTRAL 2953*

ROOFS REPAIRED AND UPHELD. CHIMNEY CANS AND SMOKE MACHINES SUPPLIED AND FIXED. PLASTER AND CEMENT WORK EXECUTED :: :: :: CHIMNEYS SWEPT

GLAZIER WORK EXECUTED. ALL KINDS OF GLASS SUPPLIED AND FIXED. LEADED WINDOWS AND WINDOW SCREENS SUPPLIED AND FIXED :: :: :: WINDOWS CLEANED

**FLAT ROOFS & DEFECTIVE ASPHALTE PLATFORMS** covered with

**'FLEXITE'**

**By COMPETENT WORKMEN.** **SATISFACTION GUARANTEED**

# :: TO THE MEMBERS OF THE ::

# ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

*We earnestly commend this Institution to your kindly consideration when giving or allocating money for charitable purposes, as it has been an inestimable boon to the working classes for over Fifty Years.*

## THE GLASGOW AND WEST OF SCOTLAND

# CONVALESCENT SEA-SIDE HOMES, DUNOON

THESE Homes (which were inaugurated in 1869 by the late Miss BEATRICE CLIFFORD) are situated at Dunoon, about 10 minutes' walk to the right of the Pier. There are over 300 beds and cribs in the Institution, which is the largest of its kind in Scotland, and it aims at assisting, by a generous dietary and a bracing and restful atmosphere, in the recovery of those who have been laid aside by illness or accident, and thus enable them to regain the health and strength necessary to resume work.

The Patients admitted last year numbered **3,221,** and since the start of the Homes over **169,311** Persons have benefited by a period of residence.

For every **One Pound** Sterling annually subscribed, in one lump sum, One Person may be nominated for admission to the privileges of the Homes **for Two Weeks,** free of charge. Lines are available for **Twelve Months** succeeding the payment of the Subscription.

On a Line from the Subscriber being presented by any necessitous and deserving person recovering from illness or accident to the Medical Examining Officer of the Institution (Dr. JOHN FERGUS, 221 Buchanan Street, Glasgow), a Medical Certificate of eligibility is given, unless the person recommended is in consumption, suffering from infectious disease, or incurable.

**The sum of £10,000 is annually required, and Subscriptions and Donations are the only source of revenue.**

## BOARD OF MANAGEMENT, for Year commencing 1st September 1920.

*President*—SIR JOHN URE PRIMROSE, BART., LL.D.

*Vice-President*—WILLIAM ANDERSON, Esq., 133 Wellington Street.

*Honorary Treasurer*—GEO. H. MORITZ, Esq., 131 Ingram Street.

*Honorary Secretary*—GEORGE B. HOGGAN, Esq., Writer, 8 Lynedoch Crescent.

*Directors.*

DAVID T. LAING.
JAMES MACFARLANE.
Bailie DAVID MASON, J.P.
J. HOWDEN-HUME.
JAMES STARK.
GEORGE SUTHERLAND, J.P.
WILLIAM PICKERSGILL.
WILLIAM ANDERSON, J.P.

JOHN BROWN.
R. D. M'EWAN, J.P.
THOMAS GRIER.
GEORGE B. HOGGAN, J.P.
ALEX. MURDOCH.
ROBERT DOWNIE, J.P.
GEO. B. CRAIG.
THOMAS DAVIDSON.

JOHN B. SHANKS.
[illegible] HAMILTON.
JAMES M. SHEPHERD, J.P.
Ex-Provost COL. MACDONALD.
JOHN DUNN, J.P.
Sir JOHN URE PRIMROSE, Bt., LL.D.
WILLIAM [illegible], J.P.
Provost [illegible].

*Medical Referee*—JOHN FERGUS, Esq., M.D., 14 Newton Place, W., Glasgow.

*Consulting Surgeon to the Homes*—JOHN RITCHIE, Esq., M.B., Fairy Bank, Dunoon.

*Assistant Secy. and Collector*—Mr. CHARLES CLINKSCALES.

*Collector*—Mr. JOHN MACINTYRE.

*Superintendent*—Mr. R. SCOTT KING. *Matron*—Mrs. SCOTT KING.

*Secretary and Treasurer*—Mr. DANIEL G. KENT.

**Office . . 221 BUCHANAN STREET, GLASGOW.**

## GLASGOW'S PREMIER BOOK SHOP

We carry one of the largest stocks in the United Kingdom of books on all subjects.

Books not in stock procured promptly.

The works of the Standard Authors in Handsome Leather Bindings in various :: :: styles and prices :: ::

*A VISIT OF INSPECTION IS CORDIALLY INVITED*

# GRANTS

**Booksellers GLASGOW**

(THE GRANT EDUCATIONAL CO. LTD.)

**91 and 93 UNION STREET, GLASGOW**

DONALD GRANT, Founder and Managing Director

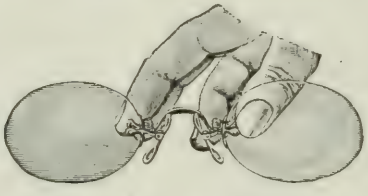
**Telephones: 7885 and 5520 Central**

# RIMLESS EYEGLASSES

GUARANTEE

## ELEGANCE, EASE AND COMFORT

*STYLISH*



*DISTINCTIVE*

**ALL THE NEWEST MOUNTINGS**

*To be assured of satisfaction visit*

# GEORGE PRESCOTT & CO.

**52 QUEEN STREET**

**GLASGOW**

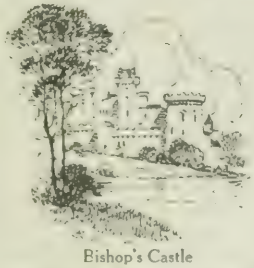
*Hours . . 9 to 6*
*TUESDAYS 9 to 1*

*Phone —— 8630 Central*

# Castlebank

## Its Origin and History

AS the Clientèle of Castlebank comprises thousands of discerning men and women in all parts of the world, it is but natural to suppose that they would be interested to know—as they are certainly entitled to know—something of the firm to whom they entrust their valuable goods for renovation.



Bishop's Castle

IN early days—centuries ago—Bishop's Castle stood in baronial splendour upon the bank near the mouth of the beautiful river Kelvin, and dominated the river Clyde and surrounding countryside.

**1888.** Near the same site in this year Mr. Alexander Kennedy established the modest factory to dye, dry-clean, and renovate carpets.

At that time the craft of dyeing and dry-cleaning was in a more or less experimental stage, and Mr. Kennedy decided that a trade mark would be necessary to protect his business and his customers' interests. The old Castle on the bank suggested an appropriate design, and thus the famous Castlebank Trade Mark, shown below, came into being.

**1894.** Castlebank removed to its present site, two miles farther west in the country suburb of Anniesland, as, owing to the rapid development of business, more modern and larger premises were necessary.

**1897.** After infinite care in experiment and research with the new coal tar dye-stuffs, Castlebank were able to successfully produce every imaginable colour on any variety of textile material. The same year, to better cope with the great influx of business, the first Branch Offices were opened in Glasgow.

**1900.** Saw the introduction of Commercial Motor Vans to Castlebank, just at a time when these were in their embryo stage and their possibilities not yet exploited.

**1909.** The discovery of the French process which was to revolutionise dry-cleaning and dyeing was investigated by Castlebank, and eventually acquired and installed in their premises. This is no other than the world-famous Franco-Barbe process, and it is interesting to note that it will be found nowhere else in Scotland.

**1910.** Realising the trouble and expense incurred by customers in having to go to their dressmakers and tailors for small repairs to complete renovation, Castlebank organised that Auxiliary Service for repairs which is so much appreciated.

**1915.** In 1915 Castlebank was formed into a private limited company. The Chairman—Mr. Alexander Kennedy—being the founder of the firm, his two sons, Mr. Alex. Kennedy, jun., and Mr. Ernest D. Kennedy, being the Managing Director and Director respectively.

During the years of war Castlebank did a National Service restoring the war-stained and torn garments of tens of thousands of officers and men during their short leave. The special dyeing and tailoring service for the conversion of Khaki into civilian wear was introduced immediately after the Armistice. Since then over 20,000 British Warms and Greatcoats have successfully been converted into civilian overcoats.

Castlebank Dye Works, 1921

**1921.** By reason of their enterprise, courage, excellent service and organisation, Castlebank are now amongst the premier cleaners and dyers in the world.

**ALEXANDER KENNEDY & SONS LTD.**

Castlebank
ANNIESLAND Dyeworks
GLASGOW

# PUBLISHED BY BLACKIE & SON LIMITED

**GEOGRAPHY—Structural, Physical, Comparative.** By J. W. GREGORY, D.Sc., F.R.S., Professor of Geology in Glasgow University. With a series of specially constructed Coloured Maps, and Sketch Maps, Plans, and Illustrations in Black and White. 7*s.* 6*d.* net.

'We have seen no better book on structural geography.'—*Westminster Gazette.*

**OPEN-AIR GEOGRAPHY AND TOPOGRAPHICAL MODELLING:** An Introduction to Field Geography and Army Drawing for Public Schools, Colleges, and Cadet Units. By J. W. TOPHAM VINALL, A.R.C.A. (Lond.), and G. LINTON SNAITH, B.Sc. (Lond.). With Foreword by Nowell Smith, M.A., Headmaster of Sherborne School. With Numerous Diagrams and Illustrations. 5*s.* net.

**OUTDOOR GEOGRAPHY.** By HERBERT HATCH, M.Sc., Geography Master at the Technical and Secondary Schools, Nelson. With many Diagrams. 3*s.* net.

**A HISTORY OF THE UNITED KINGDOM.** By ROBERT S. RAIT, C.B.E., M.A., Historiographer Royal for Scotland; Professor of Scottish History and Literature in the University of Glasgow, formerly Fellow and Tutor of New College, Oxford.

*IN TWO VOLUMES.* Crown 8vo. Price 5*s.* net each.

**Volume I. ENGLAND AND SCOTLAND TO THE UNION OF 1707**
**Volume II. THE UNITED KINGDOM 1707-1919**

**THE SOCIAL AND INDUSTRIAL HISTORY OF SCOTLAND: From the Earliest Times to the Union.** By JAMES MACKINNON, Ph.D., D.D., Regius Professor Ecclesiastical History in the University of Edinburgh. Demy 8vo. Price 9*s.* net.

'Professor Mackinnon's new work admirably fills a gap in Scottish historical literature, and provides the student with a useful guide to the main outlines of the subject. . . . The book is pleasantly written, and wears its learning with an easy grace.'—*Scotsman.*

**SIDELIGHTS ON THE HISTORY, INDUSTRIES, AND SOCIAL LIFE OF SCOTLAND.** By LOUIS A. BARBÉ, Officier d'Académie; Author of *In Byways of Scottish History*, etc. Demy 8vo. With Frontispiece. Price 10*s.* 6*d.* net.

'The researches of M. Barbé into the social history of Scotland are of the keenest possible interest.'—*Pall Mall Gazette.*

**MARGARET OF SCOTLAND AND THE DAUPHIN LOUIS.** An Historical Study based mainly on Original Documents preserved in the Bibliothèque nationale. By LOUIS A. BARBÉ, B.A., Officier d'Académie. Demy 8vo. Price 6*s.* net.

'Mr. Barbé's fine monograph . . . bears witness to the most scholarly research. . . . He has from the point of view of the average reader a still better thing to offer them in a charm of style that makes of the facts a vivid and moving piece of fifteenth century life.'—*Outlook.*

**IONA.** A HISTORY OF THE ISLAND. With descriptive notes. By F. M. M'NEIL, M.A. Large Crown 8vo. With Illustrations and Maps. Price 3*s.* 6*d.* net.

'The author has succeeded in conveying to her readers a sense of the glamour and spell which hangs over Iona, while she has drawn a true and arresting picture of St. Columba and his times. We have no hesitation in recommending thoroughly this admirable handbook.'—*Aberdeen Free Press.*

**BLACKIE & SONS, LTD., 50 OLD BAILEY, LONDON, E.C.**
**GLASGOW AND BOMBAY**

# FUR COATS, WRAPS AND MUFFS :: also FUR-LINED COATS

:: FROM STOCK OR TO ORDER ::

*FURS OF CHARACTER AND DISTINCTION*

These Furs—specially made up in our own Workrooms by experts — exhibit that touch of character and individuality so much admired by ladies. Although elegant, they are not extravagant in price, and by buying now against future requirements a considerable saving can be effected. To advise and —— suggest is part of our service ——

*PERSONAL ATTENTION*

# HENRY SAMUEL

*Practical Furrier*

3 & 7 NEWTON TERRACE
:: SAUCHIEHALL STREET ::

Established 1847 **GLASGOW** Telephone: Charing 211

·TO·HIS·MAJESTY·KING·GEORGE·BY·SPECIAL·APPOINTMENT·

# SORLEY

PEARL·DIAMOND·AND·
GEM·MERCHANTS·
SILVERSMITHS·JEWEL-
LERS·WATCH·AND CLOCK
MAKERS·

ALSO·FINE·OLD·CHINA·SILVER·
SHEFFIELD·PLATE·ETC·

PRESENTATIONS·A·SPECIALITÈ

93-97 ST·VINCENT·STREET
(RENFIELD·STREET·CORNER)
·GLASGOW·

# MACLEHOSE, JACKSON & CO.

**Just Published. One Volume. 4to.**

**Edition de Luxe, printed on hand-made paper, limited to 200 copies, numbered and signed £3, 3s. net, with portfolio of Fifty Original Pipe Tunes. Ordinary Edition, 25s. net.**

## THE PIPES OF WAR

A Record of the Achievements of Pipers of Scottish and Overseas Regiments during the War 1914-18. By SIR BRUCE SETON, BART., of Aberdorn, C.B., and JOHN GRANT.

'A singularly stirring and romantic record.'—*The Times.*

'There can have been few known and notable incidents in which pipers figured during the war which do not find places in Sir Bruce Seton's volume. It would be invidious to pick out here for retelling any of these splendid stories of dauntless courage and fearlessness in the face of almost certain death, of the inspiration which the pipes gave to men weary and worn and almost despairing in their fights against fearful odds, and of how victory was so often snatched out of the jaws of defeat under the impelling power of the music which the men loved.'—*Glasgow Herald.*

**This Day. One Volume. Demy 8vo. Price 12s. 6d. net**

## SPANISH INFLUENCES IN SCOTTISH HISTORY

By JOHN R. ELDER, M.A., D.Litt., Professor of Literature in the University of Otago, New Zealand. Sometime Lecturer in British History in the University of Aberdeen.

'His book will remain the standard authority upon this whole series of episodes.'—*Times Literary Supp.*

**Just Published. Crown 8vo. 5s. net**

## CARMINA LEGIS, or Verses Illustrative of the Law of Scotland

By W. N. GLOAG, K.C., B.A., LL.B., Advocate, Professor of Law in the University of Glasgow.

'This little volume is a brilliant hit.'—*Dundee Advertiser.*

**Just Published. Crown 8vo. With Portrait. 7s. 6d. net**

## RECORDS OF A SCOTSWOMAN

**(Katherine Stuart MacQueen). A Memoir and Account of her Work**

By MRS. NORMAN MACLEHOSE, with Introduction by the BISHOP OF LONDON.

'Her adventures and personality are well worth describing.'—*Athenæum.*

**Just Published. One Volume. 8vo. 10s. 6d. net**

## THE TEACHING OF CALVIN: A Modern Interpretation

By Rev. A. MITCHELL HUNTER, M.A., of Cardross.

'A great book. You have not often, in theology, stumbled upon a greater. . . . He is a writer on the subject which is in itself great—he proves it to be great—one of the greatest ever occupying the attention of man's mind, and he rises to the greatness of it.'—*Leap story Times.*

**Just Published. One Volume. 8vo. 14s. net**

## THE SHAPING FORCES OF MODERN RELIGIOUS THOUGHT

By ARCHIBALD B. D. ALEXANDER, M.A., D.D., Author of 'A Short History of Philosophy,' 'The Ethics of St. Paul,' etc.

'This is a history; it is a history of theology since the beginning of the Reformation; it is a history of the development of theology, every doctrine being seen in its relation to other doctrines, and the great scientific law of continuity being clearly and impressively revealed.'—*Expository Times.*

**This Day. Crown 8vo. 7s. 6d. net**

## MEMORIES AND MUSINGS OF A HOSPITAL SURGEON

'The volume makes its appeal to the general reader quite as much as to the medical man, and both should rise from its perusal with increased knowledge and appreciation of the work done in our hospitals, and a deepened sympathy with the aims of those who desire the extension and perfecting of the means of healing.'—*Glasgow Herald*

**In January. Crown 8vo. 7s. 6d. net**

## THE SONNETS OF MILTON

With Introduction and Notes by JOHN S. SMART, M.A., D.Litt., Lecturer in English Literature in the University of Glasgow.

**In January. Paper Wrappers. Demy 8vo. 2s. net**

## MR. WELLS AS HISTORIAN.

An inquiry into those parts of Mr. H. G. WELLS' ***Outline of History*** which deal with Greece and Rome. By A. W. GOMME, Lecturer in Greek at Glasgow University.

**Glasgow: MACLEHOSE, JACKSON & CO.**

PUBLISHERS TO THE UNIVERSITY

**London and New York: MACMILLAN & Co. Ltd.**

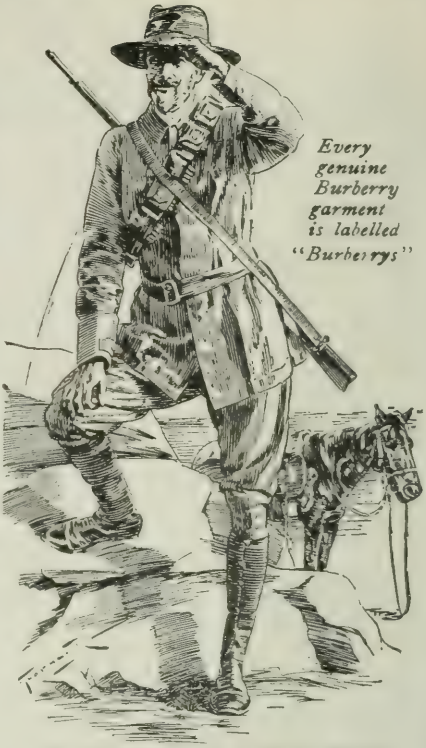
# BURBERRYS

**JOURNEYS** to distant countries for sport, exploration or livelihood, need careful elimination of unnecessary kit.

**THE WORLD'S GREATEST** travellers recognise in BURBERRY the most efficient clothing for all climates. Lightest-in-weight, strongest-in-wear, most protective against weather, thorns and destructive insects.

**FROM EQUATOR TO POLES,** in heat or cold, BURBERRY OUTFITS have saved the lives, preserved the health, and added comfort under the most trying conditions to many travellers who have sought fame or profit in unknown and unhealthy regions.

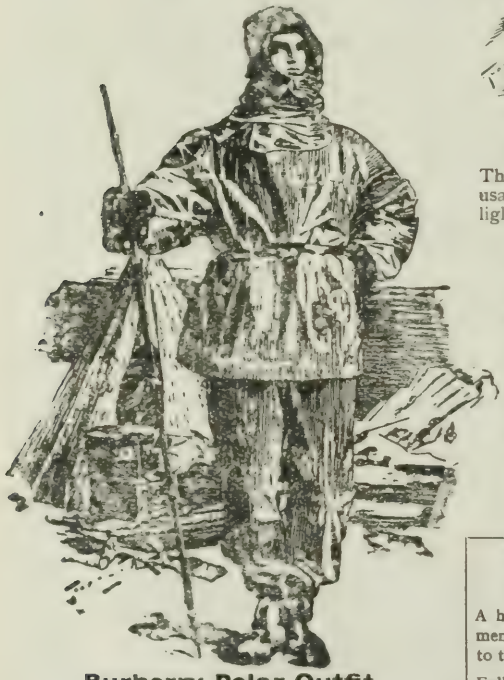
**EVERY EXPEDITION** is well served by inquiry at BURBERRYS, the greatest authorities on travellers' kit through intimate association in all matters of dress and equipment with renowned travellers and explorers during the past quarter of a century.



*Every genuine Burberry garment is labelled "Burberrys"*

**Burberry Gabardine Suit**

The finest outrig the world over for hard usage and long service. Weatherproof, airy, light and practically untearable.



**Burberry Polar Outfit**

In wet- and wind-proof Burberry Gabardine, as supplied to Capt. Scott, Sir Ernest Shackleton, Capt. Amundsen, Sir Douglas Mawson, Dr. Charcot and Dr. Nansen.

*"I attribute the saving of one man's life, who was lost for two days, during which time he was lying out in the open with a temperature of 5 degrees below zero prevailing at the time, to the fact that he was entirely covered up by 'Burberry.'"*

*(Sir) E. H. SHACKLETON*

**"BURBERRY GABARDINE IN PEACE AND WAR"**

A handbook which deals practically with equipment in every part of the world, from the Poles to the Equator.

Fully illustrated, including portraits of distinguished users of Burberry Gabardine.

**A COPY POST FREE ON REQUEST**

## HAYMARKET S.W. 1 LONDON

## also 8 and 10 Bd. Malesherbes PARIS

THE SCOTTISH

GEOGRAPHICAL

MAGAZINE.

## A HOT-WEATHER TRIP IN THE JEZIREH.[1]

By Major Campbell Munro, I.M.S.

*(With Sketch-Map and Illustrations.)*

The Yezidis are of Kurdish origin, and few of the hill-folk spoke Arabic. Besides the Sinjar Yezidis, there are other branches of the tribe who inhabit villages north and east of Mosul. Six months later when we entered Mosul with Fanshawe's column we met some of these people, and visited their most sacred shrine, Sheik Adi, in the Kurdish foot-hills.

Their Devil-Worship—or rather Devil-Propitiation—is based on their belief that Beelzebub's banishment from Paradise is only temporary, and that he will eventually regain his position there and reign as the most powerful of all the angels, when he will naturally look after his own people. The Devil-worshippers' beliefs are a curious mixture of Christianity, Mohammedanism, and Paganism. Moses, Abraham, and several of the Old Testament prophets are venerated by them.

By Mohammedans they are held in peculiar aversion: the Mohammedan regards them as idolaters and not even "People of the Book," like the Jews and Christians, to whom some degree of toleration is allowed. Many legends have been circulated to inflame Mohammedan passion against this race. The murder of the Prophet's grandson Husain on the river bank at Kerbela, an event still mourned throughout the Shiah world at the annual feast of Mohurram, is by some imputed to a Yezidi, although this story contradicts all other versions of the crime. Tales are also told of horrible Yezidi religious orgies at which the sacrifice of Mohammedan and Christian children plays a part.

The Yezidis never mention their Supreme Being, the Devil, by name,

[1] Continued from page 163.

but refer to him as King Peacock, the peacock being their symbol for the Devil. They have seven sacred golden peacocks in the keeping of their chief priest, and before these they worship as at an altar. The sacred peacocks have very rarely been shown to Christians or Mohammedans.

During our time at Sinjar we hardly left our rocky shelter. We could not go down to the villages where the Turks were, and movement about the hills was slow and difficult by reason of their precipitous character. We rested our bodies, and H. extracted the information he wanted from the chiefs who arrived continually, while I dispensed drugs and dressings to the sick. The old chief did not come after the first day, as he lived in a village about two miles from us which was garrisoned by the Turks, and he feared his continued absence from home would arouse suspicion and lead to the punishment of himself and others who had consorted with us.

These people seem to be self-supporting and to do very little trading with civilised markets. Bowls, plates, and spoons are made locally from wood. For food they live on the crops they raise at the foot of the hills. They have no rice, and a mixture of maize and barley takes the place of this article in their "pillaus." They gave us to eat mutton, unleavened bread, milk (either fresh or soured), eggs, onions, cucumbers, melons, figs, butter, and cheese. The season's fruit crops of apricots, pomegranates, and grapes were not yet ripe in July. They had no tea, coffee, or sugar, and we drank only plain water while we were in the Sinjar.

One was struck by the respect paid by the young men to their elders. The women appear to be on an equality with the men, and some of them participated freely in general conversation with their own men-folk and our Arabs, and never made even a pretence of veiling their faces.

The view from the hill-top was extensive, but not very interesting. One could see desert for about 40 miles north and south of us. In the distant north we could see the mountains round Diarbekir, and the position of Nisibin and Mardin was pointed out to us.

When H. had elicited and imparted all the information that lay within the scope of his instructions, and I had exhausted my stock of drugs, we started our preparations for the return journey. Salāmah feared that, when the Turks heard of his doings, the persons of his wife and two children would be in danger, and he insisted on their returning to Baghdad with us. For them we bought two mules from the Yezidis, and we also replenished our stock of barley for our own horses.

We planned to descend the hill before dawn one morning, spend the day at an unfrequented well in the foothills, and start the long waterless return march at sunset. Owing to vexatious delays due to Salāmah's bad management we did not get off till noon, and had to chance being seen on the way. We found the well down below choked with dead locusts, and had to go through the laborious process of emptying it before either our horses or we could get a drink. Just as we were starting on our march at sunset we were joined by a Yezidi shëikh, who

had been unable to visit us before. He lived in the plains and affected the Bedawin style of dress. He was a fine-looking fellow, and very emphatic in his views. He brought us a present of cheese and some excellent dry figs; in return H. gave him an electric torch, which greatly interested him. After riding two or three miles with us, he said goodbye, and our night march started in earnest. We were unable to move out of a walk, as the two mules with Salāmah's family had to keep up with us. The march was long and tedious, and it was not till 10 o'clock next morning that we reached the water-pool where we had parted from our camels and escort. The latter were not in sight, and we spent a long, hot afternoon waiting while the Arabs scouted to find them. They were finally marked down at a well nine miles away, and

FIG. 3.—A Desert Water-pool.

we moved over to join them in the evening. The camel-men gave us a great reception; a throne of camel saddles had been prepared for us, and we were served with innumerable cups of tea and coffee, while the Arabs gave a dance in honour of our safe return.

Our mission having been accomplished, both the Arabs and we were afire to get home as soon as possible. H. was anxious to take a more easterly course than that by which we came, in order to explore the upper part of the Wady Tartar, which would probably be the best route by which to march troops in this desert. The Arabs at first refused point-blank to do this, as, apart from the increased chances of meeting other Bedawin raiding parties, the Turkish cavalry were supposed to patrol as far west as the Tartar from their posts on the Tigris. However, after a long argument, they agreed to do as H. wished, and a long

day's march brought us to the vicinity of the ruins of Hatra, an old Roman and Parthian frontier town on the Wady Tartar. At some seasons of the year the Bedawin sheikhs pitch their tents in the ruins, but our scouts reported late in the evening at our bivouac that the coast was clear.

At half-past three next morning we sent the camels to the Tartar to water, while we rode on our ponies through the Hatra ruins. The city is about a mile in diameter, and the positions of its collapsed walls and smaller buildings are marked by mounds. But, unlike the brick-built cities of Babylon, Nineveh, and Ashur, the larger buildings at Hatra are built of enormous blocks of stone, and are roofed with stone arches, so many of them still remain intact. Some of the sculpture is fairly

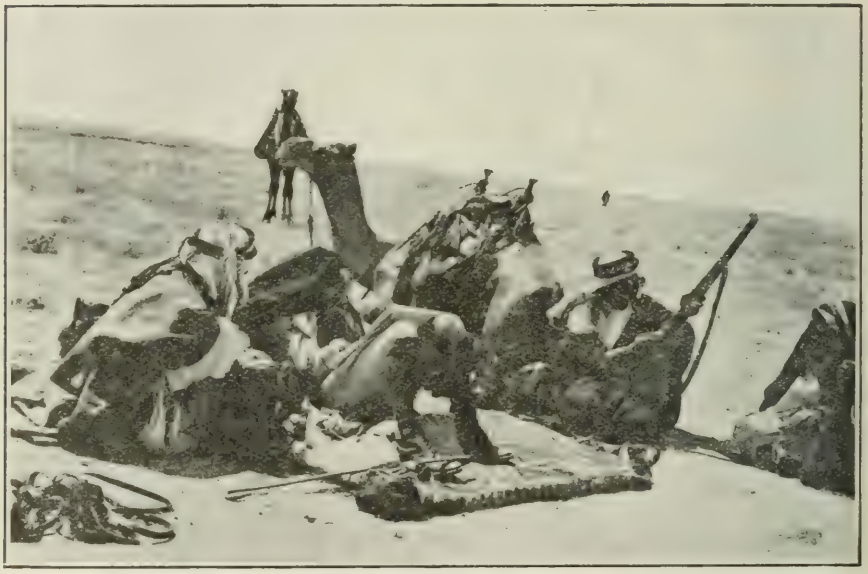


Fig. 4.—A Mid-day Halt.

well preserved, and is of the Grecian style. We could not dally long, but pushed on to the Tartar, a mile beyond the city, and followed its salt-impregnated banks southwards till we met our camel party. We passed three springs of fresh water near the stream, in one of which water-cress was growing. The division of this unexpected spoil nearly caused a free-fight among the Arabs.

We followed the right bank of the Tartar southwards, but the going was very bad for the camels, as we had to cross innumerable tributary nullahs with steep banks. Most of the loads shifted in these descents, and their readjustment caused much delay. After five or six miles we turned inland and kept along a course a mile or two from the Tartar, where the nullahs were shallower.

About mid-day we returned to the Tartar, to halt and rest. At

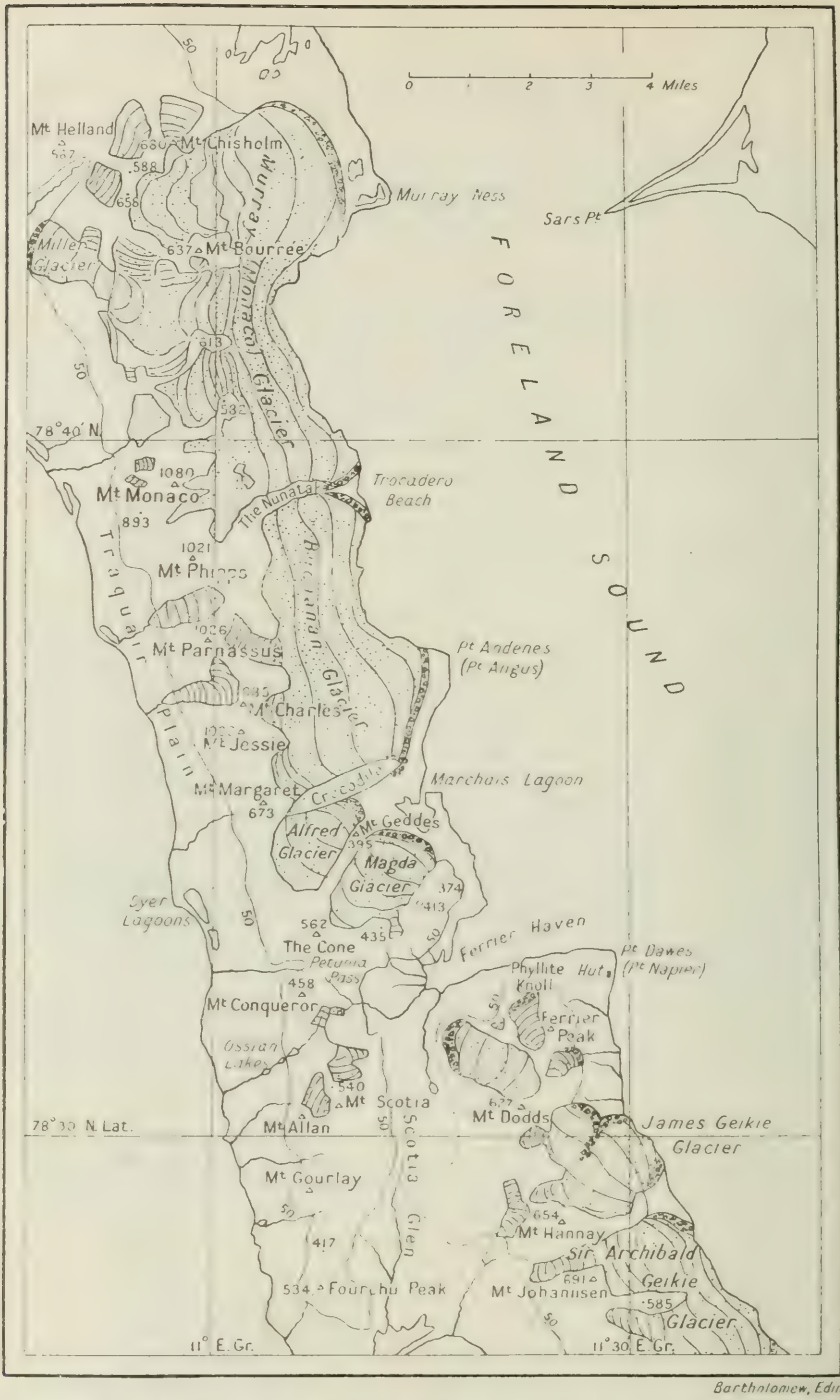
this point the stream bed is converted into a tunnel, the walls and roof of which are composed of sparkling white alabaster. The stream had dried to isolated pools, and the tunnel afforded a cool shelter for our halt. Near by was a small spring of sweet water; altogether an ideal resting place.

Here we discussed our plans. Before leaving Baghdad we had heard that our troops had advanced from Samarra to the vicinity of Tekrit on railway construction. We decided to shorten our journey by making straight for Tekrit town, which we could enter without meeting Europeans, and where the Political Officer would look after us. We arranged to push on ten miles or so that night, and by making an early start next day, and marching continuously for thirty-six hours, we hoped to reach Tekrit the day after.

By this time both men and animals were showing the effects of the long marches, loss of sleep, intense heat, and bad water. There had been few chances of washing our persons, and we had no change of clothing. We had all lost weight, and H. and I were burnt black by the sun, and had grown beards. A sorrier crowd of vagabonds it would be difficult to imagine, and it was no matter for surprise that we were eyed with suspicion when we eventually reached civilisation.

The journey worked out more or less according to plan. We marched at 4 A.M. next day, leaving the Tartar, and making a big detour to the west, halting at 5 P.M. On the way we shot a hyæna, the only thing one ever saw an Arab refuse to eat. All the water we met during these last two days was horrible. At 7 P.M. we started again, and crossed the Tartar at 10 P.M. Striking this ford in the dark was the finest instance of Bedawin skill in desert-craft that we had seen. There was no track to guide the Sheikh, and the night was too dark to see even such landmarks as the desert displays. Yet he led us in the dark for four hours, and hit off to a yard the only crossing practicable for camels within 20 miles.

We marched on throughout the night and all next morning, and at 3 P.M. reached the little town of Tekrit, on the right bank of the Tigris —the reputed birth-place of Saladin. Here, after housing our cavalcade in the "serai," we presented and explained ourselves to the Political Officer, who treated us like brothers. Iced whiskies and sodas were poured down our parched throats. Then we peeled off our filthy Arab clothes, shaved our luxuriant beards, and wallowed in hot baths. After that came tea and English food, and last—but not least welcome—bed.




Bartholomew, Edin

Sketch-map of Prince Charles Foreland, central part. Based on Isachsen's map (for reference see p. 227 of text). Scale, 1 : 200,000. Heights in metres. The 50 metre contour is inserted round the coasts, as it roughly defines the boundary between the marine platforms and the mountains. Glaciers in light stippling; moraines in heavier stippling.

# GEOGRAPHICAL OBSERVATIONS IN SPITSBERGEN, 1919 AND 1920.

By G. W. TYRRELL, A.R.C.Sc., F.G.S., F.R.S.E.,
Lecturer in Geology, University of Glasgow.

(*With Sketch-Map and Illustrations.*)

IN the capacity of senior geologist on the 1919 and 1920 expeditions of the Scottish Spitsbergen Syndicate, the writer made many traverses in various parts of the archipelago; and during the course of his prospecting work made occasional geographical notes that are thought worthy of record.[1] In the 1919 expedition Prince Charles Foreland, the Klaas Billen Bay region (especially in the neighbourhood of the Nordenskjöld Glacier), and the Stor Fiord region were visited; in 1920 the author's work lay chiefly in the area comprised between the Nordenskjöld and Ragnar Glaciers in the extreme north of the Klaas Billen Bay region, and again in the Stor Fiord.

*Prince Charles Foreland.*—From the Scottish Spitsbergen Syndicate's hut near Point Napier (Point Dawes), on the south side of Ferrier Haven, as centre, journeys were made to the north, south, and west.[2] Traverses along the east and west coasts can be easily made on the natural highways provided by the broad marine platforms and raised beaches that fringe the shores, and extend back for an average width of a mile. These phenomena have been ably described by the late A. M. Peach.[3] On the east coast great stagnant lobes of the Monaco (Murray), Buchanan, and Geikie Glaciers cover a large part of the marine platform; but these flat, unfissured cakes of ice are easily crossed, and offer no greater obstacles to travel than the raised beaches. In fact, when the snow has been melted and bare ice exposed, these glaciers provide easier walking than the water-logged raised beaches. The Geikie Glaciers south of Ferrier Haven were thus traversed several times in August 1919; and journeys were also made on the Buchanan Glacier to the north of Ferrier Haven, and on the Monaco (Murray) Glacier to the south of Richard Lagoon.

These glaciers may be classed as small piedmont glaciers. They are fed by a series of valley glaciers descending, in the case of the Monaco (Murray) and Buchanan Glaciers, from the Northern Grampians and, in

[1] I am indebted to the Directors of the Scottish Spitsbergen Syndicate for their kind permission to publish these notes. Full acknowledgment must also be made to Dr. W. S. Bruce and to Mr. J. Mathieson, the leaders of the 1919 and 1920 expeditions respectively, for their kind encouragement and ready grants of facilities for scientific work.

[2] See map of Prince Charles Foreland, by Dr. W. S. Bruce, J. Mathieson, R. N. R. Brown, and others. Scale 1 : 140,000. 1913. Spitsbergen: Partie nord-ouest (in two sheets), by G. Isachsen. "Travaux topographiques de l'expédition Isachsen, 1909-1910." *Vidensk. Skrift.* I. *Math.-Nat. Klasse, Kristiania*, 1915. Scale 1 : 200,000.

[3] "The Pre-glacial Platform and Raised Beaches of Prince Charles Foreland," *Trans. Edinburgh Geol. Soc.*, 1916, x. 289-307.

the case of the Geikie Glaciers, from the mountains about Mount Hannay. The streams of ice descending the mountain valleys become confluent where they debouch on the broad coastal platform. The piedmonts are all stagnant, or nearly so, and are at present carrying relatively little morainic material. They all, however, occasionally discharge a few small icebergs into Foreland Sound.

The Monaco (Murray) Glacier has been briefly described by Mr. R. M. Craig.[1] Isachsen's map confines the term Murray (=Monaco) Glacier to the mass of ice between Mount Laurentzon (=Mount Chisholm) and Mount Bourrée, and indicates the great stretch of glacier between Mount Bourrée and The Crocodile as the "Glaciers Buchanan." This stretch is broken half-way by the east-west ridge of The Nunatak. The Bruce-Mathieson map, however, confines the term Buchanan Glacier to the area south of The Nunatak, between this ridge and the entirely similar ridge of The Crocodile; while the area of glacier north of The Nunatak is indicated as the Monaco Glacier. My observations support the Bruce-Mathieson map in this particular; for the ice north of The Nunatak constitutes one integral piedmont mass fed by at least six valley glaciers descending from the mountains north of Mount Monaco. Similarly the ice region between The Nunatak and The Crocodile ridges constitutes another and entirely distinct piedmont fed by ice-streams from the mountains between Mount Monaco and Mount Jessie.[2]

The Monaco (Murray) Glacier ends off to the north near Mount Chisholm in a front so tapering and slender, and so free from moraine, that it was possible in the summer of 1919 to pass in one step from solid land on to the glacier. The actual slope of the snout was 8° (the mean of several measurements). A small moraine of angular blocks and mud occurs at the top of the glacis at a height of 250 feet above sea-level, due to the outcrop of a band of intra-morainic material. The moraine gets thicker eastward towards Foreland Sound. Off the east face of Mount Bourrée there is a huge basin-shaped depression in the ice, into which all the adjacent glacial streams discharge, the water disappearing down at least six moulins and tunnels. This depression is probably due to stagnant ice between the streams issuing from the valleys north and south of Mount Bourrée. It is an ice "back-water" or eddy between two parallel moving streams.

The boundary between the Monaco (Murray) and Buchanan Glaciers is formed by the east-west ridge known as The Nunatak. East of The Nunatak there is a triangular area of ground free from ice, called the Trocadero Beach, which is bounded by the southern moraine of the Monaco (Murray) Glacier and the northern moraine of the Buchanan Glacier.

The southern edge of the Buchanan Glacier rests on the ENE.-WSW. ridge of The Crocodile. The front of the glacier is here

---

[1] "Outlines of the Geology of Prince Charles Foreland," *Trans. Edinburgh Geol. Soc.*, 1916, x. p. 286.

[2] These localities may be found on the sketch-map.

very steep, and is heavily moraine-covered. From The Crocodile to the north shore of Ferrier Haven there is a wide stretch of ground free from ice between the sea on the east and the fronts of the Alfred and Magda Glaciers to the west. These glaciers emerge from great corries in the Thomson Hills (Larsen Mountains of Isachsen), and are separated by the NE.-SW. ridge of Mount Geddes. Mount Geddes is connected at its south-western end with the mountain known as The Cone. The Magda and Alfred Glaciers are both steep-fronted; the Magda Glacier, however, appears to be active, and its front is trespassing on the mud of the Marchais Lagoon. The Alfred Glacier, on the other hand, is in retreat, and has left in front of it an ancient, vegetation-covered moraine.

The topography of the region between The Nunatak and Ferrier Haven is more correctly shown in the Isachsen map. The Bruce-Mathieson map does not differentiate the Alfred and Magda Glaciers from one another, or from the Buchanan Glacier. Furthermore, it isolates The Nunatak, The Crocodile, and Mount Geddes within the ice. These long ridges strike out in a direction usually a little north of east from the backbone of the Northern Grampians, and form natural boundaries to adjacent ice-basins. They are partially covered by thin sheets of ice towards their proximal ends, where adjacent ice-masses may for a time become confluent over the dividing ridges, but the ridges can still be clearly traced towards their roots in the mountain range. Similarly there is at present a small spill-over of ice from the head of the Magda Glacier over the Thomson Hills just east of the 435-metre peak (see sketch-map, p. 226).

These ridges have essentially similar geological structures. Along with the eastern half of the Thomson Hills which border the northern shore of Ferrier Haven, they consist of folded Hecla Hook slates and quartzites, covered towards their eastern ends by an excessively coarse Tertiary breccia, which is followed by the ordinary Tertiary sandstones and shales. The structure is a monocline dipping east and south-east towards Foreland Sound. One of the geological surprises of the expedition was to find the Tertiary rocks extending back along the Thomson Hills as far as the western face of 435-metre peak.

The piedmont ice to the south of Ferrier Haven is divided into two quite separate and unequal parts by a narrow rock-ridge extending eastward from Mount Hannay. This ridge does not reach the shore, but the glaciers are further separated by about a mile of bare ground bounded on the north and south by moraines. This area is again more correctly shown by the Isachsen map. It may be suggested that the northern glacier should be called the James Geikie Glacier, and the southern the Sir Archibald Geikie Glacier, after the illustrious Scottish geologists, the Geikie brothers. This would preserve the name Geikie for the piedmont ice south of Ferrier Haven, and at the same time indicate the fact that it is composed of two separate glaciers.

Several routes may be followed from Ferrier Haven to the west coast. The longest and least direct is that through Scotia Glen, leading to the Kerr Lagoons and Nathorst Bay. Another route takes the col

between Mounts Conqueror and Scotia, descending by the Ossian lakes to the Geddes Plain. The route most frequently taken by the members of the 1919 expedition was by a col (575 feet above sea-level) between Mount Conqueror and The Cone, which was called Petunia Pass. The descent to the west coast was made by a valley that debouched on the coastal plain about one mile south of the Dyer Lagoons. Here a camp was established for a short time whence excursions along the west coast as far as the corries between Mounts Monaco and Rudmose were made.

The west coast presents an entirely different aspect to that of the east coast. There are no piedmont glaciers; and only in three cases do

FIG. 1.—Mount Jessie (3389 feet), Prince Charles Foreland, looking north from the summit of Mount Conqueror. The lower peaks in the middle distance, almost covered by mist, constitute the western part of the semicircle of the Thomson Hills. Mount Margaret is immediately in front of Mount Jessie, and The Cone to the extreme right.

valley glaciers protrude their snouts beyond the mountain border on to the raised beach platform, although various signs indicate a much greater former extension.

Traversing the raised beach platform from south to north from the Dyer Lagoons, one first notices two great corries separated by a rock ridge, in the gap between Mount Margaret and Mount Jessie. The southern one has a small cliff glacier descending into it from Mount Margaret. The stream issuing from this glacier has cut a deep, flat-bottomed gorge through rock steps at heights of 250 feet and 280 feet above sea-level. The northern corrie, at the south-western foot of Mount Jessie, is reached by a steep bouldery slope of phyllite, leading

up to a rock bar at 865 feet, which completely encloses a deep circular tarn, whose surface is about 40 feet lower than the edge of the rock barrier. The latter is breached by a narrow gorge through which the stream issuing from the tarn escapes.

A steeply-inclined glacier, with huge crevasses and seracs at the head of its ice-fall, descends from the south side of Mount Parnassus. Its front carries a heavy moraine, and projects slightly on to the raised beach. This glacier is clearly in a state of advance. Another glacier emerges between Mount Parnassus and Mount Phipps, and projects a long, flat lobe on to the Traquair marine platform. It is fed by two steep cliff glaciers depending from the northern flank of Mount Parnassus. This glacier also carries a heavy moraine, and is now quiescent after a period of rapid advance.

A small moribund glacier lies in the corrie between Mount Monaco and Mount Rudmose. On its northern side there is a huge lateral moraine of angular blocks which projects beyond the present termination of the glacier, and there is an old terminal moraine half a mile west of the present snout. A large lateral moraine running north and south occurs on the Traquair Beach at the western foot of Mount Monaco, indicating the former presence of a piedmont lobe, probably the former extension of the above-mentioned small glacier. The Miller Glacier, descending to the west coast west of Mount Bourrée, is the only other western glacier that projects on to the coastal platform. It appears now to be quiescent; at any rate its appearance has changed little from that presented in the beautiful photograph of date July 31, 1907, given by Hoel.[1]

In the summer of 1920 my colleague, Mr. J. M. Wordie, of Cambridge University, made exhaustive traverses of the northern half of Prince Charles Foreland, including an ascent of Mount Monaco, the highest peak of the island, as well as other mountains. For an account of these journeys see the *Geographical Journal*, July 1921.

*The Klaas Billen Bay Region.*—The often-noted great contrast between the mountains of the west coast and those of the central and eastern parts of the country constitutes the most striking geographical feature of Spitsbergen. The western ranges, to which series that of Prince Charles Foreland belongs, consist of high spiry peaks, built of folded rocks mostly of Hecla Hook (probably Ordovician) age (Fig. 1), but also involving some of later ages. These are the pointed mountain peaks which are first seen on the voyage from Norway to Spitsbergen, from which the country derives its name, first given to it by the early Dutch navigators. The broad central and eastern tract is a dissected plateau of rocks, ranging in age from Devonian to Tertiary, which have usually quite low dips or are horizontal. The plateau is broken into a mosaic of mountain blocks bounded by fracture planes, along which the major valleys have been eroded. The great mountain blocks are

[1] A. Hoel, "Exploration du nord-ouest de Spitsberg," *Résultats des Campagnes Scientifiques accomplies sur son yacht par Albert I, Prince Souverain de Monaco*, Fasc. xiii. Pt. III. Pl. viii. Fig. 2. 1914.

thus separated by broad, flat-bottomed, straight valleys, which, when flooded by the sea, become typical fiords. The etching out of the harder rock layers under the intensive frost conditions of the Spitsbergen climate has resulted in many of the mountain blocks being sculptured into magnificent castellated and buttressed mountains, the architectural features of which closely resemble those seen in the Grand Canyon of the Colorado (Fig. 2). This similarity has been marked by the bestowal of such place-names as the Colorado Hills, Temple Mountain, etc. The

FIG. 2.—White Berg, Cowan Range, south of Phantom Point, Klaas Billen Bay, viewed from the north. It is built of the massive limestones of the Upper Carboniferous, and shows the characteristic castellated cliffs.

maps of Baron G. de Geer,[1] W. Filchner,[2] and of Mr. J. Mathieson,[3] give adequate expression to this peculiar and impressive topography.

The mountains on the east side of Klaas Billen Bay have a characteristic aspect, owing mainly to the stratigraphical succession of the Carboniferous rocks of which they are composed (Figs. 2, 3, 5). The downward succession shows a series of hard limestones (the Cyathophyllum Limestone, the Spirifer Limestone, and Productus Cherts), which make strong bars and escarpments along the hillsides, or cap the mountain tops. Beneath these comes a series of softer limestones and dolomites, with subordinate gypsum beds, which weather on the whole

[1] *Ymer*, 1912, vol. xxxii. Also maps and plates in the "Guide de l'Excursion au Spitsberg," *XIe Congrès Géol. Internat.*, Stockholm, 1910.

[2] *Petermann's Mitth. Erganz.*, No. 179, 1914.

[3] Published in R. N. R. Brown, "Recent Developments in Spitsbergen," *Scottish Geog. Mag.*, 1920, xxvi. 111-16.

with rusty tints, and give rise to smooth slopes, broken by an occasional hard bar, and covered with the debris of the limestones above them. These are underlain by a thick series of gypsum beds, which form striking, white, regularly-striped cliffs (Fig. 4). The general dip is at a low angle (less than 5°) to the south-west; hence, towards the north, the coal-bearing beds of the Culm, of red, grey, and white colours, are brought up from under the gypsum. They have much the same physiographic expression as the gypsum. The dip also results in the hard limestones of the Cyathophyllum Limestone forming isolated caps to the De Geer Mountains, Mount Sphinx, Mount Pyramid, etc., at the northern end of Klaas Billen Bay (Fig. 3). Towards the south, however, as in White Berg, near the mouth of Klaas Billen Bay, and in Temple Mountain (see Mathieson's map, *op. cit.*), these limestones build up the main mass of the mountains, producing magnificent vertical, castellated cliffs (Fig. 2).

The weathering of the caps of hard limestone in the northern part of the region gives rise to many peculiar scenic effects. Sometimes the crests are toothed, jagged, and serrated to a degree, as in the Wordie Crags at the western end of the De Geer group of mountains. These crags consist of a narrow, vertical-sided, elongated cake of massive limestones, perched on the summit of a narrow *arête* built of the limestones, dolomites, and gypsums of the group underlying the Cyathophyllum Limestone. They extend roughly NE. to SW. for over a mile, their vertical height being estimated at 300 feet from the base of the Cyathophyllum Limestone. At the western end of the crags a remarkable pinnacle, measuring 3 feet by 1½ feet by 10 feet high, has been isolated, and makes a good survey point. This pinnacle is already shaky, and will certainly not last for many more seasons. Its height above sea-level, by corrected aneroid reading, is 2405 feet.

The mountain west of Hult Mountain, on the north side of Ebba Valley, has a curiously human profile, as viewed from any point near the mouth of Ebba Valley. This was likened by various members of the expedition to Lord Kitchener, and by others to the ex-Kaiser (Fig. 3). It is caused by the upturning of the lower beds of the Cyathophyllum Limestone along a well-marked fold-fault. Other mountains in the same region have a stepped or terraced profile near their summits, such as Mount Pyramid and Mount Sphinx, as also the magnificent pyramidal mountain on the eastern side of the termination of the Hörbye Glacier, which was provisionally called Mount Cheops.

The glaciers descending from the north-east at the head of Klaas Billen Bay, including the Nordenskjöld, Ebba, and Ragnar Glaciers, are all outflows of the great ice-cap of New Friesland (Figs. 4, 5). The largest of these, the Nordenskjöld Glacier, has often been visited and described.[1] All these glaciers are constricted where they cross the band of "Archæan" rocks, the western boundary of which runs

[1] Sir M. Conway, *With Ski and Sledge on Arctic Glaciers*, London, 1898. E. J. Garwood, *Q. J. G. S.* lv., 1899, 681-91. G. de Geer, "Guide de l'Excursion au Spitsberg," *XI^e Congrès Géol. Internat.*, Stockholm, 1910, pp. 15-16, Plates 3, 17A.

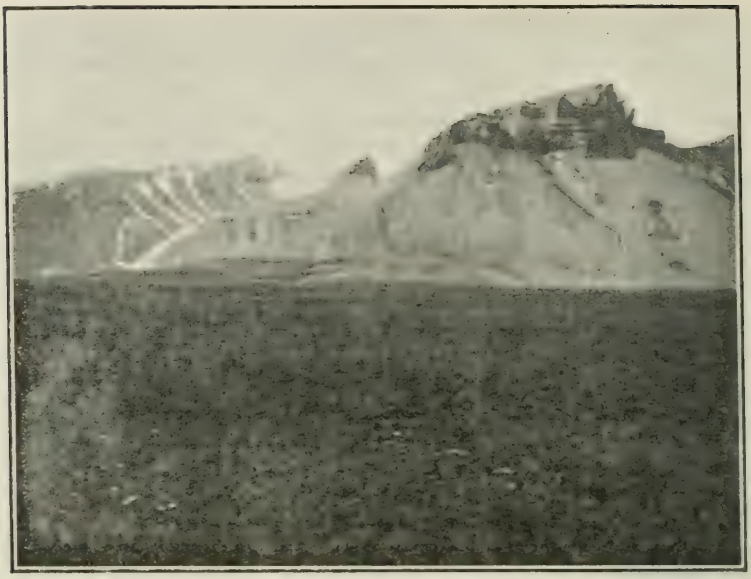


FIG. 3.—The Lion's Head (right) and Mount Sphinx (middle), viewed from Ebba Valley, at the head of Klaas Billen Bay.

FIG. 4.—View eastward up the Ebba Valley, showing the Ebba Glacier and three nunataks of Carboniferous rocks protruding from the icefield beyond. Gypsum cliffs on left side.

NNW.-SSE. along a line parallel to, and about four miles east of, the centre-line of Klaas Billen Bay. This "Archæan" outcrop produces a series of steps and heavily-crevassed ice-falls in the Nordenskjöld Glacier, as well as a constricted outlet at Adolf Bay (Fig. 5). The Ebba and Ragnar Glaciers extend past the obstacle, which produces a constriction and ice-fall in each valley, expanding again when they enter the wider parts of the valleys which are cut in the Carboniferous rocks. They thus form examples of *expanded-foot* glaciers.

The Nordenskjöld Glacier terminates in Adolf Bay as a floating cake of ice on deep water, soundings of nearly 100 fathoms having been

Fig. 5.—Nordenskjöld Glacier viewed from Cape Rudmose, on the north side of Adolf Bay. The mountains on the far side are Mount Urmston (strongly barred), Mount Cadell, and Mount Robert (snow and cloud-covered dome). In front of Mount Robert is the Carron Glacier, marked by a large medial moraine.

taken near its front. Hence it is the only glacier in the Ice Fiord that discharges true icebergs; and Adolf Bay in the summer season is often covered by bergs calved from its vertical front. The Nordenskjöld Glacier is thus a *tide water* glacier in Hobbs's terminology (Fig. 5).

At a distance of 9 kilometres east from its termination, two fine nunataks, consisting of horizontal Carboniferous rocks resting on an "Archæan" foundation, rise through the Nordenskjöld Glacier. These are known as Mounts Terrier and Ferrier. They attain a height of over 900 metres. A line of similar nunataks runs to the north, past the Ebba and Ragnar outlets, and can be seen from the heights overlooking these glaciers (Fig. 4).

The writer was fortunate enough on two occasions to get clear views over the ice-field whence the Nordenskjöld, Ebba, and Ragnar Glaciers issue, once from the Wordie Crags and another time from Mount Hult. The view is bounded to the north by a mass of dark "Archæan" mountains on the east side of Wijde Bay. What appear to be Carboniferous peaks occur to the north-north-east, and are continued southward in the line of nunataks which ends in Mounts Terrier and Ferrier. To the north-east is a high sky-line of ice beyond which no peaks are seen. The mountain ridges pass under the ice-sheet in this direction, but their courses can still be traced some distance farther by the ridging of the ice over their buried continuations. The whole length of Wijde Bay was seen on both occasions entirely free from ice, with the great Mittag-Leffler Glacier discharging into its head. The upper part of this glacier is broken through by small "Archæan" nunataks.

*The Stor Fiord Region.*—The geological structure of the Stor Fiord region is extremely simple. The bounding coasts consist of flat-lying rocks of Triassic and Jurassic ages (Fig. 7), intruded by one or more wide spreading dolerite sills, and broken only by a few slight flexures and small normal faults. The Stor Fiord itself must cover a down-sunken region, for the strata on the mainland side are practically identical with those on the Barents and Edge Islands side. There are no traces near the coasts of the fractures or flexures by which this subsidence was effected. This structure produces the characteristic tabular mountain scenery of Eastern Spitsbergen; although, since here the rocks are largely soft shales, smooth, rounded, and vegetation-covered slopes are common. There are only a few scarp-forming bars of hard sandstone and dolerite to bring out the dominant horizontal lines of the scenery.

In 1919, in company with Dr. W. S. Bruce, Mr. J. Mathieson, and Mr. J. M. Wordie, the writer landed at Keilhau Bay at the extreme south end of the Spitsbergen mainland; at Agardh Bay and Mohn Bay, also on the mainland; at Changing Point on Barents Island; and at Cape Lee on Edge Island. In 1920 a more extensive journey was possible, and in company with Mr. J. Mathieson and Mr. J. M. Wordie, Whales Bay, Cape Dufferin, and Mohn Bay were visited on the eastern coast of the mainland; Vossen Bay, the Gregory Glacier, and Vuyl Island on Barents Island; Cape Lee and a valley about 5 miles north-east of Cape Lee, on Edge Island.[1]

On August 4, 1919, we found a broad band of loosely-packed old drift ice lying right across the entrance to the Stor Fiord, from South Cape to Edge Island. It was, however, loose enough to get through with some difficulty, and it was found that the interior of the fiord was almost free from ice. The ice is brought around the south coast of Edge Island from the Barents Sea by the western polar drift; but north-easterly winds frequently blow the ice right out of Stor Fiord, as was shown during our return journey. A strong north-easterly gale

[1] Convenient maps of the Stor Fiord region on which the place-names mentioned may be found are those of Filchner (cited on p. 232), and of Isachsen, *Geog. Journ.*, March 1915.

was experienced on 7th and 8th August; on the 9th we sailed out of Stor Fiord, and saw not a particle of ice where a few days before had been a barrier probably 40 to 50 miles in width. The ice had been driven around South Cape, and we found it on 10th August piled up in a thick and obstructive band between South Cape and Horn Sound.

In 1920 ice conditions in the Stor Fiord were more favourable than in 1919. We entered the fiord on 10th August, and left it on 21st August. The only ice seen was a little drift ice coming through Heley Sound and Freeman Strait; but on 19th August we encountered a

Fig. 6.—The Russian Hut at Cape Lee, Edge Island.

stream of drift ice rounding Whales Head, Edge Island, passing up and across the fiord.

On August 4, 1919, Mr. J. M. Wordie and the writer climbed Mount Keilhau, which was the southern end of the Arc of Meridian measured by the Russo-Swedish expeditions between 1898 and 1902. Mount Keilhau consists of a huge cliff, about 1500 feet high, facing south, with a curved hog-back slope, mantled in talus, on its northern flank. Many traces of the Russian expedition were seen on the mountain. There was a well-built cairn, 12 feet high, on the summit, at 1968 feet above sea-level, according to Mr. J. Mathieson's measurement.

A clear view in all directions was obtained from the summit. The Hornsundstind was clearly seen to the north-west, and a great confusion of lower peaks to the north and east. The view also clearly demonstrates that there is here no true inland ice-cap or ice-sheet, but a series

of great, confluent valley glaciers, which frequently fill up more than half the depth of their containing valleys, and occasionally join up over the dividing ridges with the ice of an adjacent system of valley glaciers. Hobbs's type of *dendritic*[1] glacier does not closely fit these, as this term seems to apply to a system of glaciers occupying a self-contained river valley and its tributaries. In Spitsbergen, however, "dendritic" glaciers are joined up by means of *transection*[2] glaciers with adjacent systems, a type for which no convenient term seems available, and which I have provisionally called *confluent* glaciers. This type of glacier is also to be seen in views from heights near Whales Bay, and near Cape Dufferin, on the same coast. A broad straight glacial highway, like the King's Highway between King's Bay and Ice Fiord, leads from the neighbourhood of Mount Keilhau towards the head of Horn Sound. At Whales Bay the writer, in company with Mr. A. Macleod, climbed a mountain crowned by an overthrown cairn of the Russian expedition, to the north-west of the bay. The height, by corrected aneroid reading, was 2085 feet above sea-level. The geological results of this excursion were interesting, inasmuch as the horizontal strata of which the mountain was composed were shown to be of Mesozoic age (probably Jurassic) from the contained fossils, consisting of ammonites, lamellibranchs, with dentalium, fish-remains, etc. Hitherto, in all published geological maps, the country from Mount Keilhau to Agardh Bay has been represented as of Tertiary age. Much of it, however, must be composed of Mesozoic strata, for at Cape Dufferin also Triassic rocks surmounted by Jurassic were encountered.

The Strong Glacier, which descends into Whales Bay, is a good example of the confluent glacier type as described above. It has recently been advancing, as its lower half is heavily crevassed, and it has built a long, black bank of lateral moraine a mile or two out into the sea on its northern side.

At Cape Dufferin a dolerite sill fringes the coast, and extends for some miles north. The sea near by must be floored with the same rock, as the bottom is very hard, and affords but a poor and precarious anchorage. This region has been well mapped by G. de Geer[3] and his collaborators on the scale of 1 : 100,000, mostly by photogrammetric survey from Agardh Bay.

In company with Mr. A. Macleod the writer climbed the Ruriks Forberg, the mountain behind Cape Dufferin, on the north side of the termination of the Inglefield Glacier. Its height, as determined by corrected aneroid reading, is 1830 feet above sea-level. Between it and the northern lateral moraine of the Inglefield Glacier there is a broad green valley, in which scores of reindeer tracks and many fine antlers were seen. This valley is not indicated on de Geer's map, doubtless because it is hidden, in a view from Agardh Bay, by the mass of Ruriks Forberg. The Inglefield Glacier is about 12 kilometres wide where it enters the sea. Two nunataks, Mount Bunge and Mount Mathieson,

---

[1] *Characteristics of Existing Glaciers*, 1911 p. 47. [2] *Ibid.*, p. 44.

[3] G. de Geer, "Om Spetsbergens Natur i Sveagruvans Omnejd," *Ymer*, 1919, Hft. 4.

pierce it on its southern margin near the sea. With its feeders and neighbours it forms a typical confluent glacier.

The north side of Agardh Bay is well delineated in de Geer's map above cited. The writer landed at a spot about half a mile west of Fox Ness in 1919, a point reached a few days later by Mr. A. Stevens, one of his geological colleagues on the expedition, with two companions, after an arduous journey overland from Sassen Bay. It is to be hoped that an account of this trip will be published, as numerous geographical and geological observations were made *en route*. In the Sassen Valley the route followed was on the eastern side of the valley, and was thus on the opposite side to that taken by Sir Martin Conway's expedition of 1896. Few observations were made at Agardh Bay, as the landing took place in mist, and only lasted three hours. A thick ice-foot, black with disintegrated shale, was an obstacle to landing. Along the coast there is a flat rock platform, probably due to marine erosion, now at a height of 80 feet above sea-level.

Sailing from Agardh Bay to Mohn Bay on August 6, 1919, there was encountered a large, thinly-tabular iceberg, which had a length estimated at half a mile in one direction, and was probably 50 feet in height. This was seen off Duner Bay, and there can be hardly any doubt but that it was broken off from either the Hayes or Negri Glaciers, which enter the sea a few miles farther north. The Negri Glacier, an outlet of the New Friesland ice-cap, presents a low front to the sea at the north end of Stor Fiord over a width of 20 miles. Similar, but much smaller, tabular bergs were seen stranded in the shallow sea in front of the Hayes Glacier. The same large tabular berg was also seen on August 13, 1920, a mile or two farther south, and evidently stranded in shallow water. Tabular bergs of this size and of glacier origin are rare in the Arctic regions.

Landings were made at Mohn Bay both in 1919 and 1920. The northern half of this bay is occupied by the termination of the Hayes Glacier, which is now thrust forward into the bay as a tongue of ice, extending 3 or 4 kilometres beyond the coast-line. The bay is thus bisected by a broad lobe of ice. This is shown in Filchner's map of 1914 (scale 1 : 50,000).[1] Older maps, such as the Admiralty Chart of Spitsbergen, show no such extension of the glacier. Hence it is believed that the Hayes Glacier has recently made a great advance into Mohn Bay. At present it appears (1920) to be retreating, as several islands of glacier ice are now to be seen resting on the shallow sea-floor in front of the present termination.

Filchner incorrectly applies the term Mohn Bay to the northern half of the bay, between the projecting lobe of the Hayes Glacier and the Teistberg. The name really applies to the whole of the indentation between the Teistberg and the Johannsen Berg on the south side. On its southern margin the Hayes Glacier is bounded by a tabular mountain known as the Krogh Berg. Both the glacier and the mountain have a

[1] "Ergebnisse der W. Filchnerschen Vorexpedition nach Spitzbergen," *Petermanns Mitth. Erganz.*, No. 177, 1914.

NW. to SE. extension. The southern part of Mohn Bay is occupied by a large stagnant glacier (provisionally called the Usher Glacier) which does not reach the sea. Its termination is surrounded by a huge semi-circular moraine, which, in places, is a quarter of a mile broad. This terminal moraine shows a characteristic knob-and-basin topography, and rises high above the present surface of the glacier. Between the terminal moraine and the sea is a boggy outwash plain.

A valley half a mile broad at its seaward end intervenes between the Usher Glacier and the tabular mountain (provisionally called the Johannsen Berg) which bounds Mohn Bay on the south. This valley tapers towards the west, and disappears about three miles from the sea, where the Usher Glacier comes up against the hillside. A large glacial river occupies part of this valley, and has cut a rock gorge 20 feet deep about two miles from the sea.

*Barents Island and Edge Island.*—Barents Island was first touched upon at Forvaxlings (Changing) Point, a narrow rocky peninsula projecting from the north-eastern corner of this roughly-rectangular island. Changing Point consists of a broad dyke of dolerite hading slightly to the south, and about 200 feet wide. It is intruded into Triassic shales which have suffered a slight folding and normal faulting. North of the dyke the surface is flat and boggy, falling away to a cliffed edge at the sea margin, and rising to a terraced hillside towards the east.

The broad shallow bay to the south of Changing Point is called Vossen Bay on the map accompanying the above-cited work by Filchner and his colleagues. A steep cliff, bordered by a very narrow beach littered with great boulders of dolerite, rises from its margin. Owing to the constant surf this coast was found very difficult to land upon. A landing was made, however, on the coast near Mount Haast.

The next landing was made on the coast immediately north of the great glacier that emerges at about the middle point of the western coast, just opposite the low-lying Anderson Islands. The name Duckwitz Glacier is placed on Filchner's map, but there is difficulty in deciding whether this name applies to the above-mentioned glacier, or to one that descends to the shore of Freeman Strait on the south coast. The western glacier was provisionally named the Gregory Glacier, after Prof. J. W. Gregory of the University of Glasgow.

The Gregory Glacier is in a condition of violent advance. Its skyline profile is extraordinarily jagged and serrated owing to the abundance of great crevasses and seracs. The ice is dark all through owing to the immense quantity of mud that has been caught up. On the south margin of the glacier the stratification lines in the ice show tremendous crumpling, folding, and contortion. The glacier now projects about three miles beyond the coast-line, and its termination is resting on the shallow sea-floor. In its impetuous advance it has overwhelmed the low-lying Anderson Islands, which are mapped as occurring immediately in front of it. The maps, based mostly on the Russo-Swedish surveys of twenty years ago, do not show the glacier projecting beyond the coast-line. Moreover, the Anderson Islands were then accessible, and were geologically described by V. Carlheim-Gyllenskjöld. It is stated

that the Russians were astonished at the rich vegetation covering these islands.[1] Now, however, only small portions of them are to be seen emerging from beneath glacier ice. Hence the great advance of the Gregory Glacier must have taken place within the last twenty years.

From the top of the plateau north of the Gregory Glacier a few glimpses were obtained of the interior of Barents Island. The Gregory Glacier heads into a high convex sky-line of ice which can also be seen in views up other valleys. Both in Barents and Edge Islands there seem to be high interior masses of ice, either small ice-caps or plateau-glaciers similar to the Norwegian braen. Apart from these ice-masses, the interior landscape shows a succession of dark, barren plateaus or

Fig. 7.—Cape Blanck, Edge Island, viewed from the south-west. See last paragraph of text.

table-topped mountains, intersected by broad open valleys, which, on the west and south coasts, are free from ice except in the two cases mentioned.

Vuyl Island, near Cape Barkham, at the south-western corner of Barents Island, was visited. It consists of an irregular outcrop of dolerite, with green boggy hollows, tenanted by multitudes of birds. The island is certainly much farther out from the coast than is represented on Filchner's map.

Two landings were made on Edge Island at its north-western corner, one at Cape Lee and the other in a valley west of Lütke Mountain, about 5 miles north-east of Cape Lee. At the latter locality the stream

[1] See Sir M. Conway, *Nature*, 1903, vol. 67, pp. 536-8.

pours over a scarp of dolerite, causing a picturesque waterfall, and has excavated a deep gorge in the soft shales underlying the dolerite. A cruise eastward along Freeman Strait was made in the ship from this locality. The shores of the strait consist of a succession of desolate dun-brown slopes, barred with occasional horizontal outcrops of sandstone or shale. These are the edges of wide plateaus, which alternate with widely-opened valleys leading to the interior. At the heads of these valleys moribund lobes of ice descending from the interior ice-mass could be seen.

At Cape Lee a curious octagonal Russian hut (Fig. 6) was visited, which is unfortunately now getting into a state of disrepair. Near by are several graves covered with boulders of dolerite. The beach here is strewn with bones of walrus, the relics of a vanished hunting industry. The lower ground at Cape Lee is occupied by a thick dolerite sill; and a smaller sill intersects the horizontal strata in the middle slopes of the hill behind the cape. On the summit of the hill is the signal station used by the Russian expedition during the recent measurement of the arc of meridian.

Sailing to the south along the west coast of Edge Island in clear weather, the country was seen to exhibit the same characteristic landscape as noted before: level sky-lines; plateau edges barred with horizontal outcrops; dun slopes with sparse vegetation; widely-opened valleys; and distant views of a convex sky-line of ice in the interior (Fig. 7).

## GEOGRAPHIC ASPECTS OF TRADITION.[1]

By Rachel M. Fleming.

Myths and traditions are well worth studying from a geographic point of view, for in past times man's outlook on the world was necessarily very dependent upon the particular geographic background which nature had prepared for him. This placed strict limits upon his experience and social opportunities, coloured vividly the tales with which he amused his leisure, and even modified his mind so profoundly that his environment became reflected in his conception of life and its problems. But I would like to make it clear that, though most traditions gain in depth if their home is carefully studied in all its geographic aspects, climate, vegetation, topography, race type, means of communication with and knowledge of the outside world, the geographic aspect is only one factor in their creation. No environmental necessity of adaptation affects any two living things in the same way—some inherent difference makes one meet winter cold and scarcity of food by hibernating, another by migrating, another by developing different coverings and habits. The chill and hunger were the same for each,

[1] A paper read before Section E (Geography) at the Edinburgh Meeting of the British Association.

but individuality determined the particular response. So with man's tales—one traces in them that physical and social environment had a share in moulding expression and fancy, but feels that the factor of the individual response is incalculable.

O'Shaughnessy says:

> "One man with a dream, at pleasure,
> Shall go forth and conquer a crown:
> And three with a new song's measure
> Can trample a kingdom down."

One man with a dream can break the iron force of age-long passive acquiescence in social and physical conditions. Peter of Russia dreamed of the western seas, and Petrograd stands to-day a monument of the triumph of the intangible over stern geographic disabilities. The cumulative effect of continued individual and group resistance to the bonds of time and type and place is, perhaps, the most striking feature of the modern world. It is necessary therefore to bear in mind that, in this paper, one only of the many varied factors in tradition is being considered.

The Hebrew stories of the infancy of the world have a beauty and an arresting simplicity that have never been surpassed. The ancient dwellers in the lands that lie to the south-east of the Mediterranean led a wandering life, carrying their tents and possessions with them, and were not occupied in taking care of their houses and lands nor in building and ruling great cities. Many of them were shepherds who, in the long dry season, when the grass withered and the streams failed, had to lead their flocks far afield in search of pasture. The certain recurrence of this dry difficult season made them ponder on the future and take much thought for it. Others were traders who crossed the great deserts, often finding it easier to travel in the cool evening under the brilliant stars. It was no doubt this leisurely life of wandering in vast places, this familiarity with wide quiet solitudes and with the great firmament above, that helped to enrich their traditions. But the factor that made them so unique that the rest of the world has been glad to borrow and enjoy them was perhaps the necessity for handing on to each generation the accumulated experience of past generations. In this difficult desert fringe, where mistakes had such serious consequences, it was essential to hear the voice of wisdom and obey it. Perhaps it is not too much to see in the Hebrew version of the origin of death through disobedience the effect of the ideal of obedience to the elder of the tribe developed as a response to the difficulties and dangers of the nomad life. But it should be noted, too, that one race meets the desert fringe problem by irrigation and co-operation, another by nomadism and predatory habits.

If we consider the various answers which myth and tradition give to that most puzzling and yet most insistent problem, the question of death, the influence of environment is clearly to be traced. The natives of North America have a widespread story of death coming into the world as the result of a somewhat casual conversation. Among the Wintus in the Sacramento Valley the story is that two brothers were

building a stone staircase up which old men and women were to climb, to bathe in the waters of youth and to return down the other side young again. An old man comes up and discusses the plan and says he doesn't like it. If there is no death there will be no pleasant companionship between men and women, no fun with the babies, no chance for all the neighbours to see the new arrival and to say "What a nice baby," no excitement and cheering when men fight, no hunting, no fun in throwing the bones at one another after a meal. The brothers thereupon destroy the staircase, and the old man realises too late that he himself will be the first to die. The variant of this story that is told in the grim forest regions farther east has no light touches about fun with the babies. Here death is said to be the will of a little bird who says that death must certainly come—"For how should I nest me in your warm graves, if ye men never die?"

The most striking effect of environment on fancy is, however, the version current in the Arctic regions of the North. Two old women debate the question. One says, "Will ye have eternal darkness and eternal life, or light and death?" The other replies, "Let us do without light for ever if so we may do without death." "Nay," answers the first, "let us have both light and death."

This is only one instance of the way in which a primitive theme may put on adaptive colouring to meet the needs of a new environment. But many such instances are to be found among the folk-tales of North America, Polynesia, and other places where there has been sufficient movement of native peoples once in close contact to make the story from the old home require new settings to suit new needs. Any one who has compared the legend of Ishtar with the story of Persephone will realise that a new home may make great modifications in beauty of ideal. If we turn now to consider the Hindu version of the origin of death we shall see that geographic conditions profoundly influence the central theme. Brahma at first made all things so perfect that none died; living beings therefore increased to such an extent that Earth groaned beneath their weight and appealed to her Maker for relief. In his wrath, for her sake, he kindled a fire to destroy them all, and from the fire was born a woman with dark hair and glowing red eyes. Brahma called her Death and bade her destroy all living things. She wept at this command, but he caught her tears in his hand and changed them into spreading plagues and diseases and famines and sent them forth as Death's helpmates. Here surely is a reflection of life in the crowded Ganges valley and of the famines and pestilences which even to-day carry destruction through the land.

In Egyptian mythology, again, we find little trace of an endeavour to explain the origin of death, though death and the Kingdom of the Dead occupy an overwhelming amount of attention. This may be accounted for by the fact that the Egyptian found himself living on a mere intrusive ribbon of life, surrounded by a vast solitude of death and desert. The desert where life was silenced, the desert to which he committed his dead from the sheer necessity of keeping sacred the little fertile strip on which all life depended, was the supreme certainty,

about which there was no question. The fertile strip was uncertain, and might narrow to disaster if the river failed. But death and the desert were unchanging and ever present.

Even the ideals of the life after death bear the imprint of changing climatic conditions—the Egyptian pictured the pleasant land of Osiris as a "cool, misty kingdom" where the souls of the good were leisurely rowed on canals, and passed their time playing draughts. But the Icelandic theory was that the land of cool fog and mist was a punishment for the evil-minded, and the promised reward for heroes was to occupy their leisure in fighting and feasting.

Creation stories studied from the geographic point of view are very instructive. Possibly the vital difference between the Hebrew and Mohammedan belief in one orthodox story of the creation of man and the varied Greek legends as to his origin may not be altogether independent of environment. For the Greek versions are almost as numerous as the city states, which owe their origin and individuality to the numerous triangular coastal valleys separated from the mainland and from one another by the fingering out of the great fold mountains of Greece and Asia Minor. The Babylonian creation story puts emphasis on the fact that in the beginning no reed had yet sprung up, no brick had been made, nor were there any cities, nor were there any temples for the city gods. A quaint West African story kindly lent to me by Professor Barker makes a monkey the intermediary between man and his maker, and makes the beasts of the forest and the fear of them the central theme. Of course all creation stories do not bear the stamp of the environment as clearly as this—as any one who knows the Chinese creation story will readily recognise.

Before leaving this aspect of myths and traditions, it may be well to mention that in order to get the best geographic flavour out of the story it is essential to read it either in the original or in a translation made very literally—preferably by a native who knows English imperfectly. A translation into good English often involves the loss of the meaning of the native names and the loss of the native metaphors. How useful these are may be gathered from the following examples:—the Assyrian sighing "like a bed of reeds," the Hindu sighing "like a snake," the Englishman "like a furnace." Then, as regards names. In the Japanese story of Prince Fire Shine and Prince Fire Subside, the translation of some of the names is illuminating—Prince "Rice in Plenty," Princess "Blossoming Brilliantly like the Flowers upon the Trees." Even the names Fire Shine and Fire Subside gain in meaning when a study of social life makes us realise that they depend upon a very cruel Japanese tradition.

Another very interesting geographic aspect of tradition is the Song of the Road. From the very earliest times, when the heyday of the military and trading routes had passed, a sunset radiance of romance lingered about their half-forgotten tracks, and much of the world's wealth of tradition owes its existence to the tendency of the old route to form a thread on which heroic tales were linked. This tendency may be observed all over the world. The story of Sanehat and the

legend of the Possessed Princess were woven around the ancient relations between Egyptian, Semitic, and Hittite cultures. The Mahabharata contains an interesting account of the Churning of the Ocean, which seems to be an account of early monsoon trading between India and the Persian Gulf. The wanderings of Io, the epic of Ulysses, the story of the Argonauts, are the travellers' tales of the trading links between the civilisations that bordered on the Mediterranean, and of the land and sea raiders who, as Myres suggests, "shared the fun" when it was a question of the sack of a town or so.

The Rig Veda, the Mahabharata, and the Ramayana are epics of the old routes that brought invaders from beyond the Khaibar Pass into touch with the southernmost parts of India and Ceylon. The prayers and invocations which form the Rig Veda are specially interesting because of their emphasis on the need of the clouds, the rain bearers, whose cult replaces that of the sun and the river so typical of Egypt and Babylonia. The story of the Sons of Pandu in the Mahabharata shows us the invaders taking advantage of the isthmus of scanty lowland vegetation between the Thar desert on the south and the forested slopes of Himalaya on the north, to make a beginning of the clearing of the primeval forest where it thinned out towards Delhi. They established their bases here and then extended their efforts at clearing to that forested monsoonal belt on the northern slopes of the Deccan which had for so long formed a barrier between northern and southern India. Several vivid descriptions of the wholesale destruction by fire of great stretches of forest and jungle are given.

This method should be contrasted with the slower process of European Iron Age invaders who hacked their ways through the forested river valleys with much difficulty. Any one who has read Kipling's story of the return of the jungle will understand that the rapidity and luxuriance of forest growth in tropical and semi-tropical lands is the geographical factor underlying the different method.

Later stories illustrate the same tendency. The old Norse saga show us links on the ancient amber trade route developing into the links between the semi-Asiatic marts to the north of the Black Sea and the Icelandic and Scandinavian sea traders and sea fighters. It must be confessed, however, that one would not be inclined to go so far as a certain modern writer, who would make Odin a Russian merchant and would even give us the name of the town which was his central depot.

In that fascinating twilight of history, when legend and fact became quaintly intermingled in the tales which amused the leisure of the pilgrims and knights of early Christendom, there are preserved many indications of the lines of movement of peoples in Europe. Frequently the trading route of prehistoric times became a pilgrim route, especially as the Church found it useful to link the megalithic worship of heathendom with Christianity by consecrating shrines which age-long custom had sanctified. Compostella is a case in point. For the pilgrim route to the shrine of St. James of Compostella from Ireland and the western shores of Britain followed the path of the trading route of the Ægean wanderers of the Bronze Age, and the records of the Celtic saints

are full of references to old-time connections between Pembroke, Cornwall, Brittany, and Galicia. Traditional records of the history of our islands, such as Geoffrey of Monmouth's *History of the Kings of Britain*, the *Annals of the Four Masters*, the *Annals of Clonmacnoise*, are so full of obvious chronological follies and quaint inaccuracies that there has been a tendency to regard them as valueless. But at any rate they indicate clearly the very close former connection of the western shores of our islands with the coastal fringes of Europe, with the isles of the Ægean, and with Northern Africa. The Nibelungenlied is another stirring song of the road, recording movements between the Rhine lands, Burgundy, the cities and tangled valleys of South Germany, Austria, and the land of the Huns.

Another aspect of the sunset of old tales is the mapping of places where different versions of the same theme are to be found. The theme of the brother inconsolable for the loss of his lucky fish hook, so amusingly told in the Japanese *Ko-ji-ki*, is in one form or other widely spread in Indonesia. It has been traced in the Kei Islands, Halmahera, Soemba, Minahassa, Celebes, Sumatra, and is, interestingly enough, also reported from North America. The tracing of the probable course of current and wind-driven rafts from Indonesia and Japan to America, combined with the mapping of the distribution of this and other themes, should throw some light on early population drifts.

It is perhaps interesting, in conclusion, to note that geographic conditions even influenced the way in which these early traditions were written down. A comparison of the graceful curves and delicate drawings of Egyptian hieroglyphic script with the angular signs and wedges of Babylonia, brings out the point that the papyrus on which the Egyptian scribe worked was much more favourable to curves than the soft clay on which the Babylonian scribe worked. The late development of writing in India is certainly correlated with the extreme difficulty of finding a medium which will not rot in the monsoon damp, and which will resist the raids of the ants. The hard bamboo on which the Chinese inscribed their records made possible the multitude of fine lines which are so characteristic of their script.

---

## THE MEETING OF THE BRITISH ASSOCIATION.

THE eighty-ninth meeting of the British Association was held in Edinburgh from Sept. 7 to 14 last, and was one of the most successful in the annals of the body, the membership reaching a total of 2768, which has only been exceeded, and then in most cases by small numbers, eight times previously. The meeting was the fifth held in the city, the last being in 1892, under the presidentship of Sir Archibald Geikie.

In place of the usual local handbook a volume entitled *Edinburgh's Place in Scientific Progress* was issued by an editorial committee, consisting of Dr. Cargill Knott (Secretary), Prof. J. H. Ashworth, Mr. E. B. Bailey, Dr. Blaikie, Dr. Marion Newbigin, and Prof. Sampson. This

volume, which should prove of permanent value, is published by Messrs. W. and R. Chambers, so that it is available to the general public. It contains historical accounts of the part played by Edinburgh men in the advancement of the different branches of science, and brings together a mass of material not previously obtainable within the limits of one volume.

The part played by Edinburgh men in promoting the modern science of oceanography, which ranks as a branch of geography, was considered in more detail by Prof. W. A. Herdman, C.B.E., F.R.S., the retiring president, who took it as the subject of an evening discourse. Prof. Herdman said that Edinburgh might be regarded as the birthplace and early home of oceanography, and Edinburgh men and Edinburgh ideas played a leading part during the nineteenth century in establishing this comprehensive science of the sea. He illustrated this point by an account of the work of Edward Forbes, the pioneer of shallow-water dredging during the earlier half of the nineteenth century; of Wyville Thomson, the explorer of the deep sea and scientific leader of the *Challenger* expedition; and of John Murray, who continued the work of Thomson, guided research in the last quarter of the century into deeper and more fundamental problems of the ocean, and brought the science practically to its present position and outlook.

Geography was also represented in another public lecture, that given by Prof. H. J. Fleure to citizens under the auspices of the Workers' Educational Union. Prof. Fleure took as his subject "Countries as Personalities," and devoted himself more especially to a consideration of Scotland in its various aspects.

Section E (Geography) was presided over by Dr. D. G. Hogarth, C.M.G., the subject of whose address was "The Application of Geography." This address will be published here at a later date. Two points in regard to it may be noted as marking modifications in traditional arrangements. In the first place it did not, as has been the custom heretofore, open the proceedings of the section. This was part of a plan, indicated also by the number of joint discussions between sections, for linking the work of related sections more nearly together. Presidential addresses to sections are intended to deal with some topic of fairly wide interest, making an appeal to a wider audience than that only of specialists in the science directly concerned. An effort was therefore made this year to make it possible for the same audience to hear several presidential addresses in related sciences. The practical difficulty, as in all similar proposals for greater unification, lies in the tendency for the audiences to move on from section to section, and thus interrupt other speakers.

The other modification was contained in the announcement that the old rule that presidential addresses should not form the basis of a sectional discussion had been abrogated. In Section E the result was that a certain amount of discussion of Dr. Hogarth's address took place on the following day, in connection with a joint discussion with L (Education) on the teaching of geography.

The proceedings of E opened on Thursday morning with an illustrated

paper by Lt.-Col. E. F. W. Lees, D.S.O., on Aeronautical Maps. Col. Lee gave an interesting account of the desiderata for an airman's map, as compared with one destined for the use either of the navigator or for those engaged in moving over the surface of the lands. He laid some emphasis on the fact that the International Aeronautical Convention of Oct. 13, 1919, had decided upon the adoption of Mercator's Projection for the general series of maps, making direct comparison with the sheets of the International Map of the World on the scale of 1 : 1,000,000 impossible, and this point was also dwelt upon in the discussion which followed.

The President's address was the next item on the programme, and was followed by a paper by Miss A. M. B. Gillett on the "Historical Geography of the Black Earth Region of Central Russia," which will appear here later. The paper as read was a general summary of a very elaborate piece of work, based in part upon material obtained from Russian sources not hitherto translated into English. In connection with it a plan was adopted which might well become general for communications of a technical character when conditions in the printing trade, and the Association's finances, make the issue of printed abstracts once more possible. In this case a limited number of typewritten sheets were circulated containing, not a general abstract of the paper, but a summary of the more abstruse details, which could not be included in the communication to the Section. An elaboration of this plan would help to solve the difficult problem of the best method of bringing new material to the notice of an audience which always contains a considerable proportion of non-specialists.

In the afternoon Captain L. V. S. Blacker gave an illustrated address on "Fresh Ground in Turkistan and Khorasan, 1918-20." This paper was read to the Royal Geographical Society of London last May, and appears in the *Geographical Journal* for September, with a sketch-map and illustrations from photographs.

Friday morning was taken up by two joint discussions, one, on the Origin of the Scottish People, in combination with Section H (Anthropology), and the other on the Teaching of Geography, in combination with Section L (Education). Both were a little disappointing, though for different reasons. The first in point of fact lasted at least the greater part of the morning, and was apparently intended to do so by the organising committee of Section H. But the members of Section E were expected to be back in their own room at 11.30 for their discussion with Section L. Since, also, the anthropologists spoke first in the discussion, it may be said broadly that Section E did not participate in it. In regard to the second discussion the difficulty was the absence of a precise agreement between the different speakers as to the subject to be discussed, the title given proving to be too vague. It seems clear, therefore, that while the idea of joint discussions between different sections is a good one, these require very careful organisation for complete success to be attained.

The discussion on the Origin of the Scottish People was opened by Sir Arthur Keith, F.R.S., in a singularly clear and effective speech, which

was, however, felt by many to tend to over-simplify the problem. His main thesis was that the inhabitants of the Highlands and western parts of Scotland were branches of the same Nordic stock as the people of the inland parts of Scandinavia. He said that Scandinavian geologists estimated the beginning of the emergence of Scandinavia and of Scotland from the ice at a period of about 11,000 B.C. The North Sea was then an estuary, or bay, open to the north, with a western shore leading up to Scotland, and an eastern leading to Scandinavia. On the Danish, as also on the Scottish coasts, were found the shell heaps of the Harpoon Folk, the earliest inhabitants in the north-western outskirts of Europe in Post-Glacial times. The culture of this people was to be traced to countries in the south-west of Europe, and although their remains had not been found, it might safely be inferred that they arose from the long and big-headed type of man found in South England and on the Continent at the close of the Ice Age.

It was thus maintained that Scot and Scandinavian were descendants of the late palæolithic men of south-west Europe. The accepted opinion that the late palæolithic races of South Europe had dark hair, eyes, and complexions was probably well founded. Fair hair, light eyes, and clear complexions, which find their fullest expression in the inhabitants of Baltic lands, were best regarded as characters recently evolved. The darker hair and eyes of the modern Scot might not be due to a later Mediterranean admixture, but to his retaining to a greater degree the complexion of his palæolithic ancestor. The evidence gathered in all countries round the North Sea pointed to an increase in stature amounting to 3 or 4 inches since neolithic times—showing that evolution as well as admixture had been at work.

If it was supposed that the northward drift of the Harpoon People took place at the beginning of the neolithic period—some 6000 or 7000 B.C.—about 4000 or 5000 years were left as a blank in the history of the Scottish people, for it was not until the beginning of the second millennium B.C. that reliable facts were obtainable. At the beginning of this period Scotland was in free communication with Europe by two portals. Through her eastern coasts she was open to the opposite shorelands of the North Sea and to Central Europe, from which came the second great invasion, that of the round-heads. There seemed, Sir Arthur said, only one possible explanation of the westward spread of these peoples. They must have had not only superior means of offence and defence, but must also have been in possession of an art which gave them an immense superiority over their neighbours. The only art which could give such a power was agriculture—the knowledge of how to make a piece of land carry a score of families which, by its natural produce, could not support a single soul. It was not necessary to say where or when agriculture first came to be practised as an art. If they supposed that, at the time when the Harpoon People were drifting northwards, the round-headed natives in lands lying to the east and south of the Caspian Sea had already learned the art of the crofter, then they could explain the western expansion of the round-heads and the distribution of kindred tongues from India to Ireland. It was quite

feasible that the Celtic and Teutonic tongues might be modifications of the speech which reached Western Europe in the mouths of the round-head neolithic invaders.

Having thus seen the kind of visitors which Scotland was receiving through her front door in the earlier part of the second millennium B.C., it was necessary to turn to see what was taking place at her western or back door. At this time the pulse of South-Western Europe—of the Mediterranean—was beating on Scotland, along what might be called the Celtic sea-passage—St. George's Channel, the Irish Sea, the western shores, to Orkney and to Norway. Professor Bryce was of opinion that the people buried in the western megalithic tombs of Scotland represented invaders of the Mediterranean type. They might equally well be considered as the native Nordic people of Scotland; indeed, in such skulls as retained the face there were certain features which suggested a northern origin.

The Roman invasion, he believed, left no appreciable mark on the Scottish people. But in the fifth century, when the Romans were gone, both eastern and western doorways became again open and busy with visitors. The Dalriad Scots from the north of Ireland entered by the western portal; they might have brought a tongue which was new to Scotland, but they brought no new physical type, for they had every right to presume that Ireland was originally peopled by the same race as settled in Scotland. From the fifth century onwards, for a period of 500 years, Scotland received by her eastern doorway settlers from the coast lands on the opposite side of the North Sea. They came from lands which, like Scotland, were first settled by the Harpoon People. They brought Teutonic dialects to Scotland, other manners, traditions, and arts, but no physical type of manhood which was new to Scotland. The difference between Celt and Saxon was a difference produced in the same race by separation in time and space; the distinction between them was a political, not an anatomical one.

Professor T. H. Bryce said that while there was no direct evidence regarding the physical characters of the early inhabitants of Scotland, he agreed with Sir Arthur Keith that there was a strong presumption that the primitive basis of the population was Nordic in character. Superimposed on this, however, in his opinion came, first, in late neolithic times, the men of the chambered cairns, and second the Beaker Folk of the Bronze Age. These three elements, blended in different proportions, made up the population of pre-Roman times, since when it had been altered only by the intrusion of similar elements and reassemblage. In South-East Scotland there were traces of a new element in the Iron Age with a late La Terre culture. It resembled the Gaulish, but the interments were native, not Gaulish. The distribution of the chambered cairns and burials of the Bronze Age indicated a grouping of the elements which, taken in conjunction with the movement of historical times, explained the well-known features of the present-day population.

Professor Bryce was followed by Dr. J. F. Tocher, who gave a summary of his observations on the physical characteristics of the

present population of Scotland. By some striking diagrams and figures he illustrated the great variability of the living population, and emphasised the danger of drawing far-reaching conclusions in regard to the average stature and other features of the prehistoric population in view of the small number of observations which have so far been available. A paper by Professor W. J. Watson on the place-names of Scotland in relation to the question under discussion was read in the absence of the author. Professor Jehu and Mr. Donald F. Mackenzie both opposed, from different points of view, the opinion that the main element in the Scottish people was of Nordic origin.

In the discussion on the teaching of geography little was said that lends itself to the purposes of a short abstract. Mr. Geo. G. Chisholm in his opening remarks dealt chiefly with the question as to what should be precisely included within the subject, while Sir Richard Gregory, who followed, dealt with science teaching in secondary schools. He considered that up to the age of sixteen there should be a general science course of which geography should be the unifying principle. Mr. W. H. Barker gave a brief account of an actual course on similar lines to those advocated by Sir Richard Gregory.

The greater part of Monday morning was devoted to a discussion on the Geography of Edinburgh and District, which was opened by Mr. F. C. Mears. His paper was illustrated by an exceedingly fine series of slides, and dealt especially with the mediæval period. Other speakers were Mr. Geo. G. Chisholm, Prof. Patrick Geddes, Mr. H. R. G. Inglis, Captain Bartholomew, Dr. Blaikie, and Prof. Fleure, and the discussion was followed with keen interest by a large audience.

Later, Mr. Inglis and Mr. Cowan gave a demonstration and explanation of Primitive Maps of Britain and Early Plans of Edinburgh, the Society's collection of Old Maps being on exhibition in the Section room during the course of the meeting.

On Tuesday morning Dr. Marion Newbigin read a paper on the Mediterranean City-state as exemplified in Dalmatia. She pointed out that the early growth of independent or quasi-independent city-states was one of the most characteristic features of the Mediterranean area, a fact which suggested that such cities were a response to the geographical conditions there. By an analysis of these conditions it was shown that they rendered possible local aggregations of population, supported by the intensive cultivation of the peculiar Mediterranean crops, and that further the nature of these crops permitted the cultivators to dwell together in a walled town, placed on a site suitable for defence. The advantages and disadvantages of such settlements were considered, especially the factors which limited growth in size. It was pointed out that, in Dalmatia as elsewhere, the sites first chosen were not as a rule such as to facilitate either land trade or sea trade, but that the limiting factors rendered it necessary that some supplement to the natural products should be found if the city were to attain any size. The causes which promoted sea-borne trade between the Mediterranean area and the Far East were then considered, and the significance of this trade in promoting the prosperity of certain Mediterranean cities

pointed out. The main facts in regard to the history of the Dalmatian towns were then summarised, with the object of showing how these had been influenced by the local conditions.

Thus it was shown that the first cities were Greek colonies, and that Roman interference, which began in B.C. 232, was due to an appeal for protection from Illyrian piracy. The development of the towns, especially of Salona, Scardona, and Narona, after the Roman conquest of Illyria, was briefly described, and their destruction at the time of the Slav invasions in the seventh century noted. The rise of new cities, notably Spalato and Ragusa, and the reconstruction of Zara were then discussed, the purely maritime position of these and their isolation from the surrounding Slav peoples being especially dwelt upon. The participation of the cities in the Eastern trade and their varying relations to Hungary and Venice were discussed, and the effects of the Coming of the Turk were shown to be numerous and complex. The first effect was the blow to the Eastern trade carried on by Venice, which was felt much more by the northern cities than by Ragusa, which was able temporarily to seize some of the Eastern trade. The next stage, it was pointed out, was the steady decay of all the cities and the conversion of Dalmatia as a whole into a barrier between Eastern and Western Europe, between Christian and Moslem lands. The constant recurrence of piracy, from Roman times onwards, on the Dalmatian shore was emphasised alike in connection with the mediæval cities and with Italian policy to-day.

Lieut.-Col. H. S. Winterbotham followed with a paper on the present position of the International 1 : 1,000,000 map of the world, in which an account of the progress made by the various participating states was given, with notes on the various difficulties which have arisen during the course of the enterprise. The paper was based upon the *Report* for the year 1921 published, in French and in English, by the Ordnance Survey Office. This *Report* is in the Society's Library, and reference should be made to it for details.

Miss R. M. Fleming then read the paper which we print on p. 242, and Mr. H. M. Spink gave an illustrated address on the Distribution of Commercial Timber on the Pacific Coast of North America, illustrated by a fine series of lantern slides. We publish this paper here on p. 257.

In the afternoon Mr. A. W. Grabham spoke on his recent journey from Lake Tana to Roseires.

It may be noted here that the Society's Rooms were open to members of the Association during the Meeting, and an exhibition of educational material, including books, maps, atlases, and other teaching apparatus, was held within them which was largely visited and aroused much interest.

The Meeting in 1922 is to be held in Hull, and that in the following year in Liverpool. There is some prospect that Canada may be the place of meeting in the following year.

# AN EXAMPLE OF LAKE EROSION INDUCED BY DREDGING.[1]

By E. M. KINDLE.

PRECISE data regarding the stability or relative permanence of recent lacustrine and marine deposits are ordinarily not easy to obtain. Because of the difficulty of making direct observations on the permanence of recently deposited sediments, most of the published statements regarding this matter fall in the category of "views" and opinions. Divergent views are still held by geologists regarding the relative stability of under-water deposits, some believing such deposits to be very unstable and others holding that they are seldom subject to removal or shifting until brought within the reach of subaerial erosion.

Some data having a bearing on this general question have been communicated to the writer by engineers of the Department of Public Works of Canada.[2]

The case to be described is an unusual one, in that it affords an example of a deposit in a condition of growth or equilibrium being thrown quickly into a state of disintegration and instability by the temporary introduction of a new agency, itself but slightly destructive, which set in motion the lake forces of erosion. A floating dredge of the type commonly used in harbour work was the stimulating factor which appears to have been responsible for causing the natural forces of the lake to remove from a bar an amount of material vastly greater than that excavated.

Cobourg is one of the important ports on the Canadian side of Lake Ontario, located about 70 miles east of Toronto. Its harbour (Fig. 1) is the only one on the Canadian side of the lake which is kept open for navigation throughout the winter. The engineers who are responsible for the maintenance of the Canadian lake harbours find it necessary to dredge annually the bar which accumulates at the entrance to Cobourg harbour. Following the usual practice, Mr. J. M. Wilson, District Engineer for the Toronto district, ordered a detailed survey, with soundings of the lake bottom immediately adjacent to the harbour entrance, to be made during the summer of 1919. This survey was made as a preliminary to estimating the amount of dredging required to remove the bar which had accumulated during the preceding winter and spring. The depths which were found are indicated in the harbour plan (Fig. 2). Estimates by the engineers based on this survey gave 25,510 cubic yards as the amount of material to be dredged. After a small amount of dredging had been done, the apparent and unexpected disappearance of much of the bar led to a resurvey of the bottom included in the first survey. Both sets of figures are shown in the plan

---

[1] Published with the permission of the Director of the Canadian Geological Survey.

[2] The writer is indebted to Mr. K. M. Cameron and Mr. J. M. Wilson for all the data here presented. The surveys were made under the direction of Mr. Wilson.

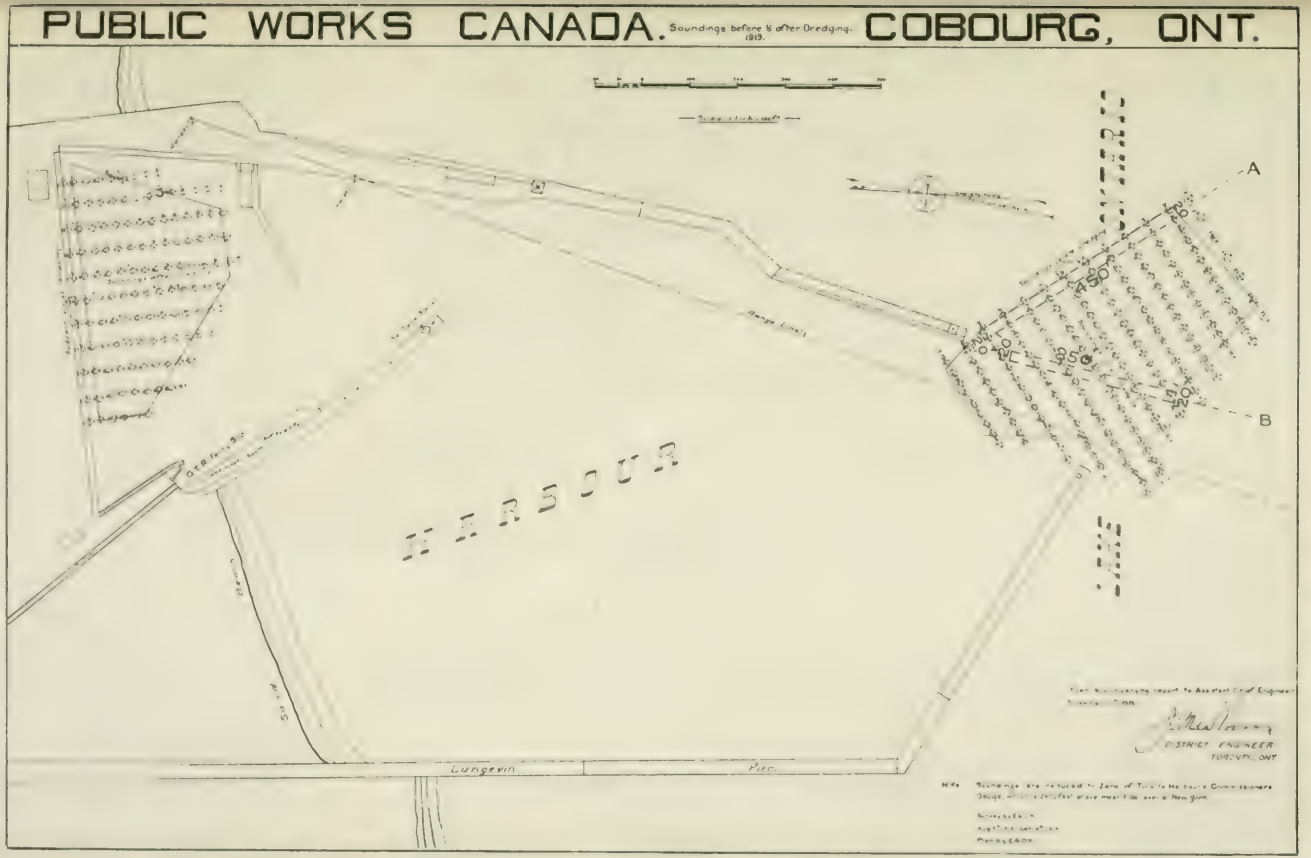



FIG. 1.—Plan of Cobourg Harbour. The position of the bar which accumulates annually is indicated approximately by the soundings at the harbour entrance.

of Fig. 2. These two surveys, made August 5 and October 14, 1919, furnish the basis of the quantitative estimate of the amount of material which was removed from the bar between these two dates. Dredging was done only over the areas enclosed by the lines marked A and B in Fig. 1. From the latter area, which has a length of 350 and a width of 20 yards, the inspectors' records show that only 150 cubic yards was removed. Concerning the dredging in the other area,

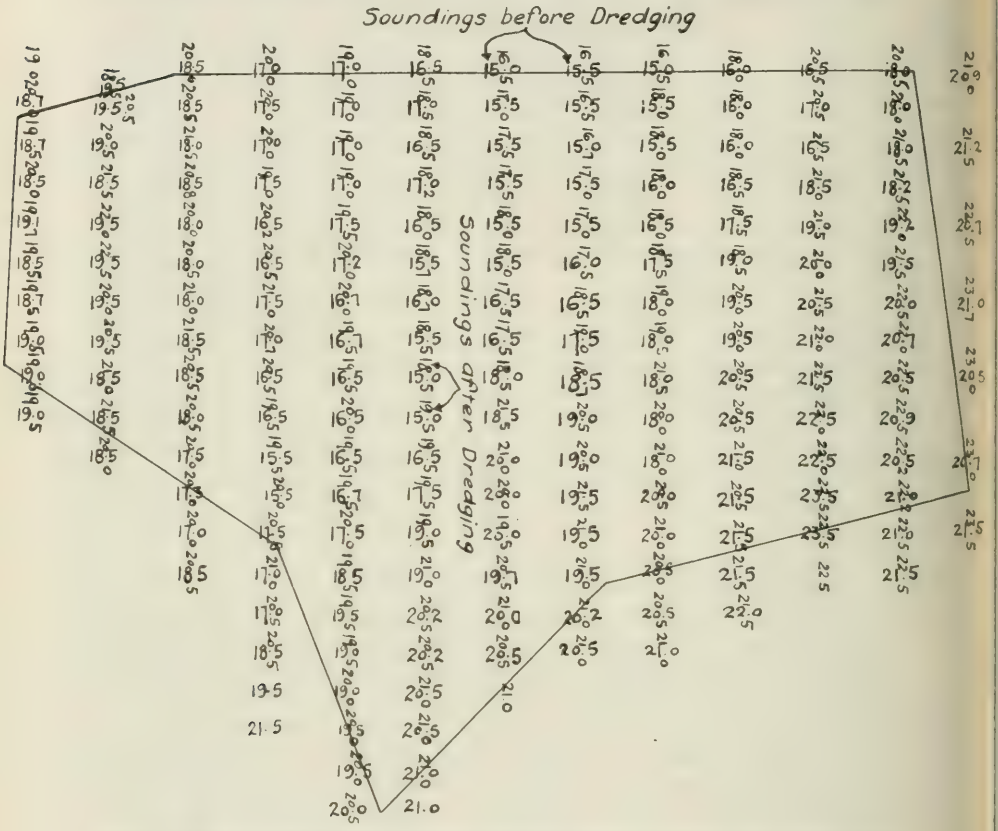



FIG. 2.—Plan of soundings taken at harbour entrance before and after disappearance of bar.

450 by 20 feet, Mr. J. M. Wilson, the District Engineer, writes as follows :[1]—

"The area shown within the dotted lines was worked over by the dredge, but owing to a defective door on the dipper, it was found almost impossible to hold the fine sand, so that little or none of the dredged material reached the pockets in the scow. However, the stirring up of the material, coupled with wind and current action, removed the material as effectively as if it had been dredged in the ordinary way. The

[1] Letter of August 19, 1920.

length of this area is 450 feet by 20 feet in width. The total place measurement that it was proposed to remove was 25,510 cubic yards. The total scow measurement removed was 150 cubic yards. The total place measurement removed by wave action, current action, etc., was 11,773 cubic yards."

It is apparent from Mr. Wilson's figures that the removal of the 11,000 odd cubic yards not touched by the dredge was accomplished by natural agencies after the original bed had been disturbed.

A record of weather conditions at Cobourg kept by the inspector of dredging during most of the period between the dates of the two surveys on which the estimates of bar erosion are based, may be summarised as follows:—The record begins 8th August and terminates 11th October. A heavy sea is reported on fifteen days, accompanied during four days by south-east or south-west winds. "Rough weather" on fourteen days, and winds on six days are recorded. Only six days are reported as fine. There is for several days no record, but the period was in general evidently a stormy one. The weather conditions were most favourable for the development of strong near-shore currents and vigorous wave action. Under ordinary conditions these agencies would presumably have added to the volume of the bar at the harbour entrance. The removal, however, of 150 cubic yards of the bar by the dredge resulted in substituting erosion for accretion. Such a relatively large result as the removal of 11,000 cubic yards induced by the abstraction of 150 cubic yards of material by the dredge is hardly less surprising than the changes brought about in certain chemical solutions by catalysing agents which themselves take no direct part in the reaction which they induce.

## THE GEOGRAPHICAL DISTRIBUTION OF COMMERCIAL TIMBER IN THE PACIFIC STATES OF NORTH AMERICA AND ITS SIGNIFICANCE TO THE LUMBER INDUSTRY.[1]

By H. M. Spink.

*(With Sketch-Map and Illustrations.)*

The forest area of the Pacific States of North America has been often stated to represent one of the very few remaining areas of virgin forest in the world—at least so far as the valuable softwoods of commerce are concerned. Until about half a century ago, this area was unexploited, but at the present time it is fast disappearing under the attack of lumber-camp and saw-mill. This paper proposes to consider briefly this forest area and its principal constituent trees, and to give some account of the factors influencing the distribution of the chief forest types.

The two main controlling factors in the distribution of tree types

[1] A paper read before Section E (Geography) at the Edinburgh Meeting of the British Association.

are climate and topography. So far as the Pacific Coast is concerned, the topographical features can be described as consisting essentially of a series of more or less parallel and continuous mountain chains between which lie extensive valleys or high plateaux. Of these lines the most westerly can be traced northwards from Los Angeles through the Coast Ranges of South California, the Klamath Mountains of North California, the Olympics of Washington, and then through the fringing islands from Vancouver to Alaska. This northerly portion of the chain is partially submerged. A second line is traceable from the south of the Sierra Nevada northwards through the Cascades and is continued, over the border, in the Coast Ranges of British Columbia.

Between these two mountain lines, stretching from Los Angeles to Puget Sound, is the great series of valleys—the San-Joaquin-Sacramento and the Cowlitz-Willamette. Of the two mountain lines described, the more westerly is considerably lower than the Cascade-Sierra Nevada line, and therefore the oceanic winds are little obstructed in their passage inland.

North of Puget Sound we have the coast ranges practically on the seaboard, and behind them an immense plateau area, deeply seamed by river valleys and stretching eastwards to the slopes of the Selkirks, the Gold Ranges, and eventually the Rockies. Much of this plateau has a slight rainfall, and in some parts—as in the "Dry Belt" of South British Columbia—there is actually a deficiency of precipitation.

We have, therefore, on the basis of the topography of the Pacific States, three well-defined climatic zones :—

1. The coastal strip from the sea to the crests of the most westerly mountain chain forms the first zone. Everywhere this is distinguished by the most striking equality of temperature. Points so far distant in latitude as San Francisco and Prince Rupert show a difference of only 10° F. in their average annual temperatures (*see* Table I.). This coastal strip has a very heavy rainfall, especially in the neighbourhood of Puget Sound, which lies in the track of the low pressure storms moving from the North Pacific. Thus the coastal counties of Washington, and the western coasts of Vancouver Island, have an average rainfall of from 60 inches to 180 inches. Another important point is the rapid increase in sunshine hours from north to south. These vary from 1830 hours per year for Prince Rupert to 5621 hours for San Francisco. The amount of light is an important factor in tree growth.

2. The valley areas south of Puget Sound, together with Eastern Washington and the Interior Plateau of British Columbia, form the second zone. The leading characteristics are: (1) a generally more extreme range of temperatures, varying from 1° F. January average for Atlin to a 81·7° F. July average for Merced; (2) a marked decrease in annual precipitation: 11·3 inches for Atlin, 12·5 inches for Okanagan, 10·8 inches for Merced; (3) a generally much greater amount of sunshine than on the coastal strip (*see* Table II.). In this area, therefore, the conditions of temperature and moisture are much less favourable to tree growth than on the coastal strip, and continuous forest is rarely found.

3. The slopes of the Selkirks and Rockies, the mountains of Idaho

and Eastern Oregon, together with the Sierra Nevada, form the third zone. Here climatic conditions resemble those of the valleys, but rainfall (and snowfall) is much greater. Temperature conditions, while not so equable, are generally favourable except at high elevations. Great extremes are often found (*see* Table II.). Thus climatic conditions in the valleys and plateaux, and in the easterly mountain region, resemble each other and are distinct from the average conditions on the coast. It is therefore easy to distinguish between "Coast forest," which is confined to the coastal strip, and "Interior forest," which occurs in the valley, plateau, and eastern mountain region outlined above.

This division of the Pacific forest is important, not only because the differing conditions of climate favour the growth of different tree types and different forest densities, but also because the natural barriers of the north and south trend of the mountains tend to determine the natural markets for Pacific lumber. Thus it is the Coast forest which (north of the Golden Gate) supplies the ever-increasing sea-export trade, while the timbers of the Interior forest find a rapidly growing market in the Middle West.

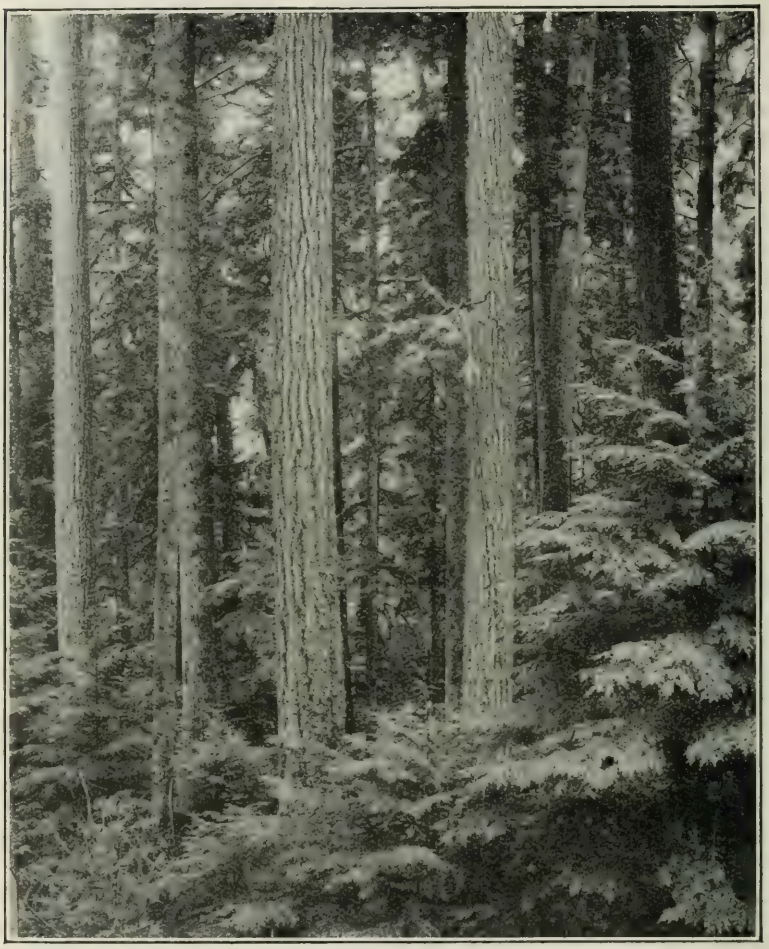
The Pacific forests (including Alaska) cover an estimated area of 300 million acres. So favourable are the forest conditions that they contain over 50 per cent. of the total merchantable timber of the continent of North America. Of this the Coast forest contains 60 per cent. of the total stand of timber, *i.e.* 30 per cent. of the valuable timber of North America. These Coast forests are mainly composed of four trees—Western Red Cedar, Western Hemlock, and Douglas Fir, together with Sitka Spruce, which occur in varying groupings according to climatic conditions:—

(1) In the Douglas fir type this tree and red cedar form 50 per cent. of the stand. This forest type is found only in areas where the maximum rainfall is less than 75 inches, with a very slight snowfall. Its greatest development occurs where the total precipitation is between 50 inches and 60 inches. The Douglas fir demands more light than any other associated tree, and therefore gives way to others more tolerant of shade in areas of greater rainfall. This forest type is found from sea-level in North British Columbia up to 3000 feet in its southerly extension about the Oregon-Californian boundary.

(2) Farther north the Douglas fir type is replaced by the red cedar type, in which the cedar becomes the predominant tree. Even in the south this type replaces the Douglas fir type at the higher elevations. Red cedar supplies 50 per cent. to 60 per cent. of the stands; western hemlock, which is extremely tolerant of shade, 25 per cent.; and the balance is made up of Sitka spruce and balsam.

(3) Throughout the area occupied by types 1 and 2, a third, named the hemlock-spruce type, is found. These trees supply 40 per cent. and 30 per cent. respectively of the stand, and become especially prominent in North British Columbia and Alaska. The type scarcely ever occurs at elevations greater than 1000 feet, and is usually at its best below 500 feet. Rainfall in the areas in which the type thrives varies from 40 inches to 115 inches, with an average of 75 inches.

This forest type is most important for the wood-pulp industry. All its constituent trees are used, the most important being the hemlock, which supplies 60 per cent. of the total wood used in the Pacific pulp industry. The industry is confined to the forests of the Coast, in



Coastal Forest, Douglas Fir type, in dense stand.

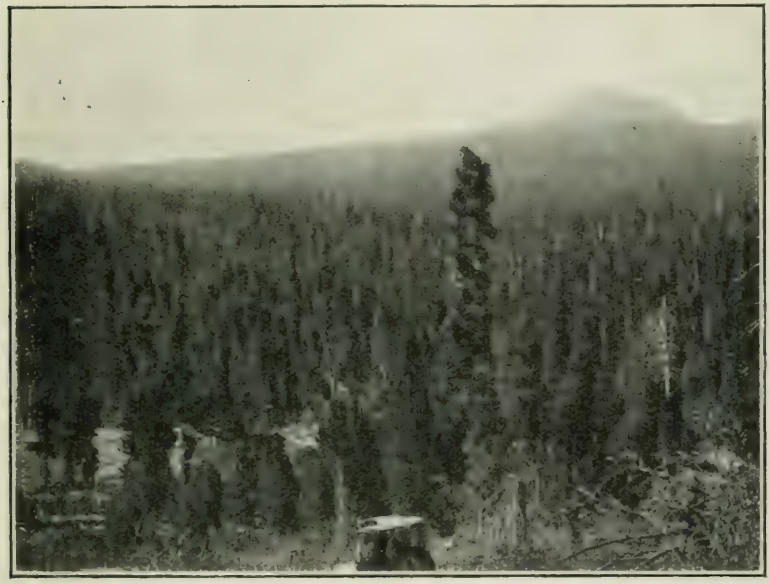
which 19 mills operate south of Puget Sound and 6 others to the north, producing 300,000 tons of paper annually. The geographical distribution of this type of forest points to a great extension of the pulp industry in British Columbia and Alaska.

(4) North of the Lynn Canal the hemlock-balsam type occurs. It prevails over wide areas in Alaska, but generally at higher elevations, and in areas of high precipitation and heavy snowfall.

(5) A fifth type—the Sequoia—occurs all along the seaward slopes of the Coast Ranges of North California and at high elevations on the Sierra Nevada. Only the redwood trees of the Coast Ranges are commercially important.

The redwood thrives best at low levels, especially on the moist coast plains. It requires humid conditions, and benefits from the heavy sea fogs of the Golden Gate area.

The tree types of the Interior forest are only sparsely represented in the valley and plateau regions, but forest growth increases as the foothills on the east are reached. Generally speaking, over the whole area lying eastward of the Coast forest, the forest types are very similar.



Heavy Forest, Yellow Pine type, Klamath National Forest, California.

They are two in number: (1) the Yellow Pine type; (2) the Douglas Fir type (mountain form).

(1) The yellow pine type, in which the pine predominates, is found on well-drained soils at elevations of 1500-2500 feet in South British Columbia, and 4000 to 7000 feet in South California.

The western yellow pine itself is one of the most important and widely distributed trees in North America. It thrives especially well in the heat and dryness of a continental climate, and therefore the type increases rapidly in the south, and reaches its widest extension in the South-West States. It prefers sunny situations, but stands cold very well. It resists drought better than any other commercial tree, but does best where long summers are combined with a rainfall of 18 inches to 40 inches. It is extremely intolerant of shade.

In the extreme south of its range western yellow pine makes up 100 per cent. of the stands, since it thrives on a low margin of moisture. In South Oregon and North California the yellow pine type is modified by the presence of sugar pine, which often makes up 15 per cent. of the stands, though generally at altitudes of 4000 feet to 7000 feet. Sugar pine is one of the most beautiful trees in America. It is exacting, however, in its requirements—demanding abundant moisture, light, and good soils. In consequence its range is limited.

(2) The Douglas fir type of the Interior forest extends, with many variations in the constituent trees, from Central British Columbia to the Oregon-Californian border, but is most marked in Southern British Columbia and in Eastern Washington and Idaho. Southward of this the type merges into the yellow pine type. In virgin stands the Douglas fir composes 60 per cent. of the trees, but where the original forest has disappeared, either from fire or logging operations, the fir is replaced by lodge-pole pine. The Douglas fir type thrives best at altitudes of 2000 feet to 4000 feet, with a precipitation of 18 inches to 40 inches. Above 4000 feet lodge-pole pine predominates.

In the Sierra Nevada, near the Oregon border, the forests still contain large areas of the Douglas fir type, but here, as indeed over all the area of the Interior forests, the types often vary very much in their constituent trees. Nowhere in the Interior forests is there found the very definite location of types such as is found in the Coast forest.

In the Idaho forests such associated trees as western larch, white fir, lodge-pole pine are frequent, while farther south the stands include western yellow pine, cedar, white fir, sugar pine.

The relation of the Pacific forests to the economic life of the central and eastern portions of North America becomes more important each year. Since the opening of the Panama Canal their significance to Europe as sources of supply has increased also, and in addition they continue to gain in importance as a source of supply to Australia and the Far East. Each year, therefore, sees an increasing demand made upon the forest resources of the Pacific States of North America.

The result has been ruthless and uneconomical exploitation of forest areas, an abnormal expansion of the lumber industry in the West, with a constant state of insecurity in the industry. But the results to the community are more serious, because exploitation of such a nature leads to (1) a continual shifting of the centre of the lumber industry; (2) a steady increase in the proportion of transport costs as the lumber centre moves; (3) a great increase in the price of lumber; (4) the disappearance of the more valuable tree types, since these are cut first and seldom replanted.

The constant shifting of the lumber industry to areas increasingly remote from the timber markets is particularly serious. In the early forties of the last century lumbering centred in New England. In 1850 New York was the leading lumber state. Ten years later Pennsylvania led. Then came the period when the "Lake States" were the centre of

the industry. These reached their maximum output in 1892, and then rapidly declined. Now the region produces only one billion board feet and scarcely controls its local market.

In the seventies the Gulf States took the lead and reached their maximum production in 1909. At present they still lead in the total out-

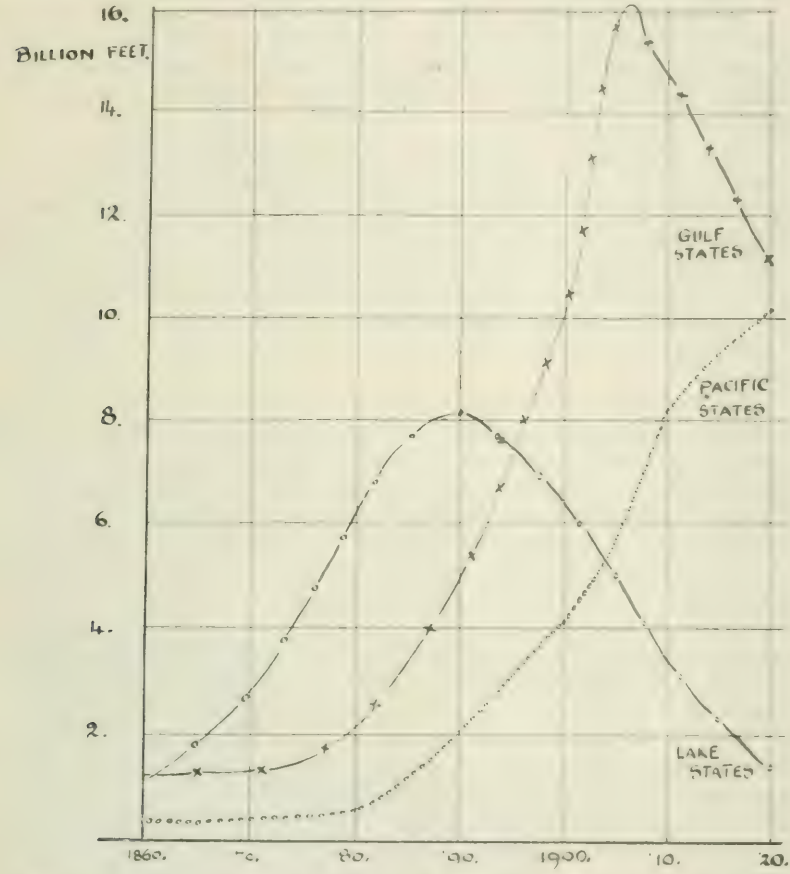



FIG. 1.—Timber output of (1) Lake States, (2) Gulf States, (3) Pacific States in the period 1860-1920.

put, but, as the chart (Fig. 1) shows, the Pacific forest is rapidly superseding them.

The same thing is true of the forest area of Eastern Canada, where, although forest exploitation has never been so intense as in the U.S.A., the leadership in production is inevitably passing to the Pacific. Since 1900 the Pacific forests have been actively exploited. At present there is an annual cut of 11 billion board feet, to which must be added $1\frac{1}{2}$ billion feet lost as a result of fires or other causes. The regrowth

is estimated at $3\frac{1}{2}$ billion feet. Therefore the annual destruction equals more than three times the reproduction, though, of course, as much of the area is virgin forest where regrowth is slow, the reproduction would be much greater in replanted areas. But even so there is a serious difference between the amounts cut and the reproductive capacity.

When the full effect of the increasing demands likely to be made upon the Pacific forests is felt, the question of the "life" of the forest is seen to be very urgent. The "home" market in the States is being rapidly extended owing to failing supplies from the older lumber centres (Fig. 2).

This map shows (incidentally) how serious is the transport factor, since the market is steadily becoming more distant from supply. Quite apart from the physical difficulty which the railroads must face in moving an ever-increasing volume of lumber from the West, it is found that the percentage of the lumber costs absorbed in freights has risen from 12·5 per cent. in 1905 to 15 per cent. in 1910 and 28 per cent. in 1915. The question has aroused very serious attention in North America, and the U.S. Senate called for a special report in June last year.

Almost as important, so far as absorption of Pacific Coast lumber is concerned, is the growing export overseas. The opening of the Panama Canal merely accentuated an increasing sea traffic in Pacific lumber. The overseas markets in order of importance are Great Britain, continental Europe, China and Japan, Australia and South America. If we eliminate the War years, the tendencies of the export trade become clear, except that the rapid advance of the European market is altogether since 1915 when the Canal's influence made itself felt. Thus since 1900 the Chinese and Japanese market increased by 350 per cent., the Australian by 300 per cent. and the South American by 300 per cent.

The total foreign shipments in 1913 totalled over 600,000,000 board feet.

How great the demands now being made upon the Pacific forest area are, is sufficiently obvious, and in view of the short life of the other American forest regions we may expect some kind of control over the lumbering operations in that region. At any rate, the question is being seriously debated in the Canadian and American legislatures at present.

TABLE I.—Meteorological Conditions on the Coastal Strip.

| | Average Temperature in Degrees F. | | | Rainfall in Inches. | | | Ann. Sunshine. |
|---|---|---|---|---|---|---|---|
| | Jan. | July. | Av. Ann. | Jan. | July. | Av. Ann. | Hours. |
| Prince Rupert (50), . | 38 | 50 | 44·8 | 135″ | 1·97″ | 86·58″ | 1830 |
| San Francisco (100), . | 49·5 | 57·3 | 54·9 | 5″ | 0″ | 23·25″ | 5621 |

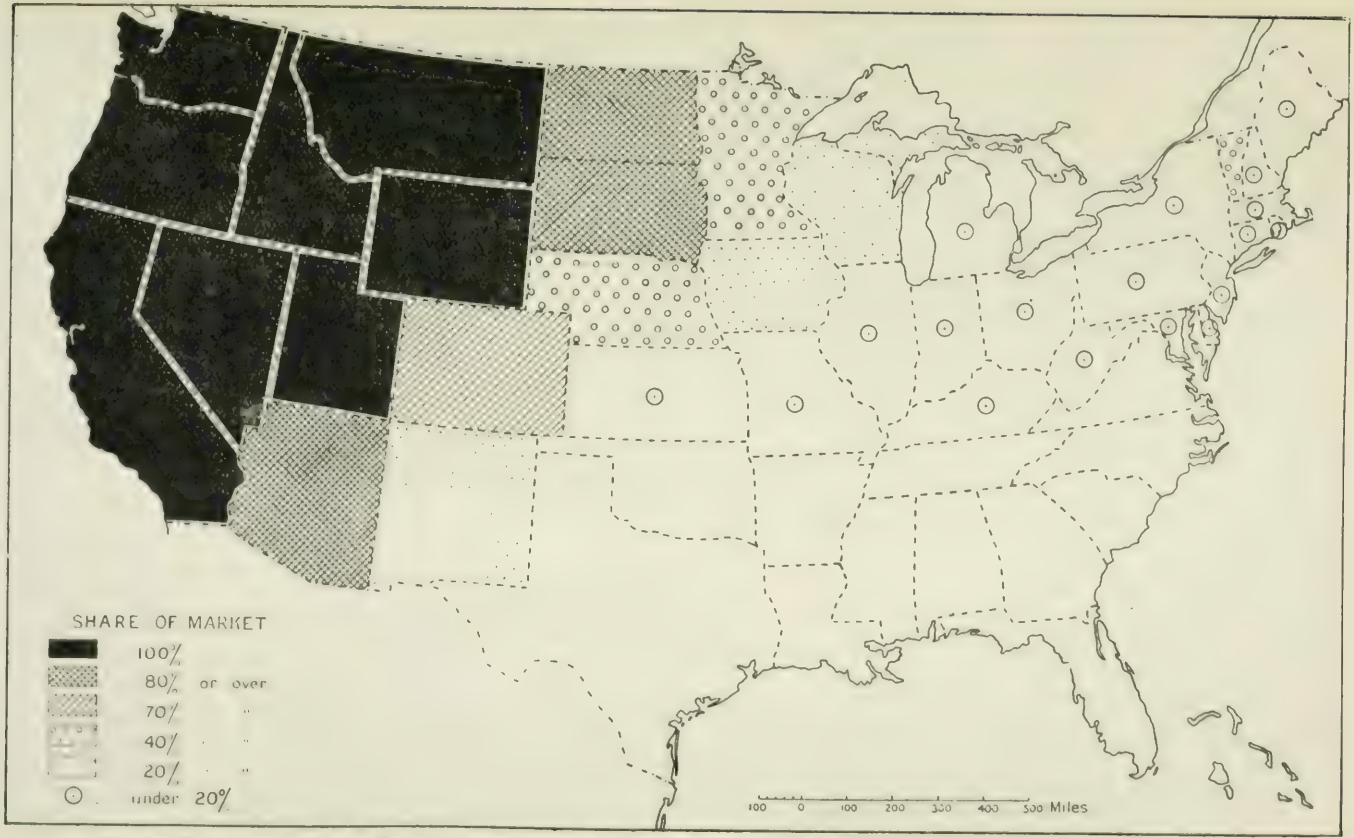



FIG. 2.—Sketch-map of United States to show the extent to which the home market is supplied by timber from the Pacific States.

TABLE II.—Meteorological Conditions in the Areas of Interior Forest.

| Interior. | Average Temperature in Degrees F. | | | Rainfall in Inches. | | | Ann. Sunshine. |
|---|---|---|---|---|---|---|---|
| | Jan. | July. | Av. Ann. | Jan. | July. | Av. Ann. | Hours. |
| Atlin (2240), | -1 | 53 | 30·5 | 1·01 | 1·08 | 11·34 | ... |
| Quesnel (1700), | 14 | 62 | 39·7 | 1·57 | 1·77 | 14·78 | ... |
| Okanagan Val. (1200), | 20 | 66 | 44·7 | 1·2 | 1·1 | 12·5 | 2134 |
| Spokane (1891), | 27 | 69 | .. | ... | ... | 18·85 | ... |
| Merced (173), | 47 | 81·7 | | 2·35 | 0 | 10·8 | 6460 |
| Cascade Sierra Line. | | | | | | | |
| Stuart Lake (2280), | 7 | 55 | 33·3 | 1·57 | 1·53 | 15·75 | ... |
| Glacier (4000), | 14 | 57 | 35·7 | 8·61 | 2·97 | 60·11 | ... |
| Weaverville (2160), | 34 | 70·4 | 51 | 7·89 | ·38 | 38·49 | ... |
| Napa (20), | 46·9 | 67·6 | 58 | ... | ... | ... | ... |
| Placerville (1875), | 59·9 | 100·8 | 78·3 | 8·71 | ·02 | 44·45 | ... |
| Tulare (274), | 58 | 101·2 | 79·6 | 2·93 | ·01 | 15·95 | 6500 |

*Note.*—The figures in brackets show the heights of the stations above sea-level.

TABLE III.—Time of Reproduction of Trees of Merchantable Size.

| | |
|---|---|
| W. Yellow Pine, Douglas Fir, Larch, Spruce | 120 years. |
| W. White Pine, W. Red Cedar, W. Hemlock | 100 years. |
| Lodge-pole Pine | 140 years. |

## GEOGRAPHICAL NOTES.

### Europe.

**Archæology and the Ordnance Survey.**—The most interesting point in the *Report* of the progress of the Ordnance Survey to 31st March 1921, which has been recently issued (Cmd. 1308), deals with the subject of Archæology. On 1st October 1920 Mr. O. G. S. Crawford was appointed Archæology Officer on the staff of the Survey, and the immediate result has been great additions to the information

given on certain maps in regard to prehistoric monuments. Gloucestershire and Oxfordshire have just been dealt with, and in the former county eighty-one new barrows (tumuli) have been placed upon the map, of which nineteen are chambered long barrows. In this county two hundred and eight sites were personally inspected by the Archæology Officer. In Oxfordshire a great number of new sites have been added to the map through the instrumentality of a Joint Committee of the Oxfordshire Historical and Architectural Society and the Oxford Historical Society. The new entries include several Roman villas. In regard to other counties also it has been found possible to arrange for co-operation with county archæological societies, and it is expected that in future the archæological entries of each county will have been checked and supplemented in advance of the revision, so that when this comes to be made the necessary information will be already accessible in a convenient form.

Another point of interest in the *Report* is a note on the increased sale of the maps. Apart from an increase due to the rise of price of the maps, there is an actual increase of sales of about 35 per cent., believed to be due not only to improved business methods but to the attractiveness of the new map-covers.

**Census Results.**—The preliminary Report of the census taken on 19th June last shows that on that date the population of Great Britain was 42,767,530, an increase of 1,936,134 or 4·7 per cent. on that of the census of 1911. The percentage increase was greatest for Wales (9 per cent.), least for Scotland (2·5 per cent.), while England showed the intermediate figure of 4·8 per cent. The present population of Scotland is 4,882,288, as compared with 2,091,521 in 1821.

Of the counties Lanark contains almost one-third of the total population of Scotland, while Kinross, with under 8000, has the smallest population. Of the cities Glasgow has 1,034,069 inhabitants, while Edinburgh has now 420,281. The number of Gaelic-speaking people in Scotland is decreasing steadily. There are now only some 10,000 persons speaking Gaelic only, and these are virtually limited to Ross and Cromarty (4860), Inverness (4660), and Argyll (599). As regards the populations of the individual counties, there is some evidence that the month in which the census was taken (June) had a marked effect on the total figures in the case of those counties which contain popular summer resorts. This is notably the case in Argyll, where the parish of Dunoon and Kilmun and the burgh of Dunoon show very remarkable increases on the figures for 1911.

The preliminary Report, in addition to the figures for Great Britain, contains some statistics for other parts of the Commonwealth. Thus the Indian Empire now contains 319,075,132 people, an increase of nearly 4,000,000 in the inter-censal period. In the Australian Commonwealth the increase is nearly 1,000,000, the present total being 5,426,008. New Zealand has now a population, exclusive of the Maoris, of 1,218,270, and the Union of South Africa contains 1,521,635 persons of European descent.

**A Survey of Hungary.**—Before the War the Hungarian Geographical Society published a book of some size on the Crownlands of St. Stephen. The intention was that the book should be translated into foreign languages, so as to be accessible to the world at large. The War prevented the execution of this project, but, under date 1919, a pamphlet based upon the larger book has been issued, and has recently reached us. It was apparently intended for submission to the Peace Conference, as we learn from a prefatory note contributed by Dr. Louis Lóczy, the editor, and discusses the geography, history, and economics of the country. There are four sketch-maps, and, despite the changes due to the peace treaties, which deprive the statistics of much of their value, the pamphlet contains a considerable amount of material of interest to geographers. For example, there are some interesting facts in regard to the vineyards of Hungary. Phylloxera appeared first in 1875, and proved exceedingly destructive in the mountain regions. A large amount of replanting with resistant stocks has been done, but it was noted that Lowland vineyards, established on light drift sand, were generally immune to attack. In consequence much planting in this type of soil has taken place, the so-called "sand vineyards" now forming more than one-third of the total. Nothing is, however, said as to the value of the product of these as against those of the mountain type.

## Asia.

**The Jordan Valley and Irrigation Projects.**—Among the projects for the development of Palestine which have been put forward since the War, those dealing with irrigation are naturally conspicuous. One such scheme, which has received the general approval of the Palestine Government, has a geographical interest in addition to the economic one, in that it aims at utilising the peculiar features of the Jordan Rift valley. The scheme falls into two parts. In the first place it is proposed to erect a barrage at the southern end of the Sea of Galilee (Sea of Chinnereth), in order to form a main storage reservoir for a Jordan power-house to be constructed near Jisr-el-Mejami, some six or seven miles south of the lake. This power would be utilised for pumping irrigation water, for lighting and heating, for industrial development, and possibly for the electrification of the railways. Again, a canal would be constructed along the foot of the hills on the western side of the Jordan valley, for irrigating the slopes between the foothills and the river. If political conditions permitted, a similar canal could be constructed on the eastern side of the river. Secondly, it is proposed that Lake Huleh (the Waters of Merom) should be drained, which would lead to the reclamation of 50,000 acres of land, and get rid of marshes which form a breeding-place of the malaria-carrying mosquito. Since the Jordan falls nearly 700 feet in a distance of under fifteen miles between Lake Huleh and the Sea of Galilee, it would be possible to construct a power-station between the two. The scheme, if carried out, would necessarily lower the level of the Dead Sea, and it is thought that various chemicals might be profitably worked on the exposed part

of the bed. A sentimental objection which has been put forward is that the great reduction in the flow of the Jordan would be distressing to pilgrims, but this does not seem of great importance if the scheme is otherwise feasible.

## Africa.

**Algeria.**—The French Universities are in the habit of arranging each year a conjoint excursion for their advanced students. Last year Western Algeria was selected as the goal, and the number of the *Annales de Géographie* for May 15 is practically taken up with an account of this excursion, and with supplementary articles and notes written by those who took part in it. The fact is worthy of notice, for excursions on such a scale are all but unknown here. Apart from this, however, the articles and descriptions are of much value, especially in that they are written by geographers well acquainted with the conditions on the north shore of the Mediterranean, and therefore qualified to bring out the contrasts and resemblances which the African side presents.

The party landed at Oran on October 18, 1920, and between this date and November 2 visited the town and neighbourhood, Tlemcen, the southern part of the Oran province down to the edge of the desert, Blida and the neighbouring Atlas region here, the town and region of Algiers, and also made an excursion to the Grande Kabylie.

Among the special articles in the number, apart from the general account of the journey, we may note a careful study of the Port of Algiers by Prof. Lespès, notes on the vegetation and soils by M. Max. Sorre, and a discussion of the physical geography of the country by Prof. de Martonne. There are some excellent photographs.

As was natural in view of its interest, the visitors seem to have been specially impressed by the Grande Kabylie, that strangely isolated country with its Berber population. Thus M. Marcel Larnaude lays stress upon the peculiarities of position of the villages, high up on the mountain ridges, from which the women are compelled to descend in long files to seek water. To the usual explanation of this position, the need for protection, he adds the suggestion that it enables the inhabitants to reach easily both slopes, alike densely clothed with olives and fig-trees. M. Sorre points out that such fruit-bearing trees, of pure Mediterranean type, form the best method of utilising the surface. In Algeria, he says, the meadow is an accident, the arable field, except in the plains where the soil is deep and irrigation is possible, a precarious and unstable form of exploitation, the garden can only have a limited extension, but the plantation is practicable on soils which cannot be utilised by any other method. Prof. de Martonne, again, discusses the probable origin of the curious crests, rising above the steep and widely open valleys, which are the great feature of the Kabylie and carry both the villages and the roads, and compares the relief here with that of the Cevennes.

## America.

**Eastern Peru.**—Last year Dr. W. R. Allen of Indiana University undertook an expedition to Eastern or Amazonian Peru to study the fish fauna of the rivers. In *Science* for April 22 he gives a brief summary of his observations on the geography of the region.

Dr. Allen entered the country by Lima, Tarma, and La Merced, crossing thence to the head of navigation of the Pichis-Pachitea-Ucayali system by the Via Central. The last 125 miles of this route took ten days to travel. The trail is very bad, being an endless succession of mudholes, and yet it is almost the only means of communication between coastal Peru and the Transandine province. There are shelter houses at convenient distances, and no real hardship was experienced, but for goods transportation costs to the coast are naturally almost prohibitive. Thus practically all traffic has to go eastward by the Amazon, and is controlled by its shipping companies. The author's subsequent explorations were made by boat, chiefly steam launches, and his journeys took him as far as Iquitos, and included the main streams and several of the tributaries of the great rivers Ucayali, Marañon, and Huallaga. These three rivers form a vast confluent flood-plain parallel to the Andes, extending over a distance of 500-600 miles. The plain is only about 400 feet above sea-level and has little topographic relief. At Iquitos the annual fluctuation in the level of the Amazon is 40 feet, so that vast stretches of the plain are flooded yearly. In exceptional years—and 1920 was one of these—the floods may destroy much of the crops. Fishing is a very important local industry, but the use of dynamite or of poison roots has resulted in the great reduction of the total numbers of fish in certain streams, and also of certain valued fishes. Both practices are prohibited by law, but such laws are difficult to enforce. Some birds are also becoming scarce, this being notably true of the egret. It is, on the other hand, interesting to note that Bates's prophecy, delivered seventy years ago, that the turtle would soon become extinct in the Amazon has not been fulfilled. This is because petroleum has replaced turtle oil in the local market, and the natural increase of the animals is apparently sufficient to compensate for their use as food.

Of the future of the country Dr. Allen has little hopeful to say. Since the post-War drop in the price of cotton this product no longer pays for transport, and agriculture is not in a healthy state. On the other hand, he does not take so gloomy a view of the nature of the country itself as do some other authors. Only one of the regions he visited, that of the Upper Marañon, was badly infested with fever, and he thinks that the numbers of noxious animals and of insect pests have been exaggerated.

## Economic Geography.

**The Early Sussex Iron Industry.**—Mr. Rhys Jenkins read recently before the Newcomen Society two papers on this subject. The iron industry in Sussex is very old, and was certainly carried on during

the Roman occupation. With the coming of the Anglo-Saxons it appears to have waned, but recovered from Norman times onwards. Though it is customary to speak of the district concerned as Sussex, in point of fact it includes parts of Kent, Surrey, and Hampshire, and is more accurately described as the Weald area. Down to about the latter part of the fifteenth century the iron was produced by a direct process, and the industry was a domestic one. Charcoal was used as fuel, human labour only was required, and the necessary appliances were few, simple, and cheap. At some date before 1500, however, French iron-workers appeared in the area, and brought with them the blast furnace and the finery process of converting cast iron into malleable iron. This involved a complete change in the nature of the industry. In the first place human power was inadequate, and since water power was used, and this meant the acquisition of a mill, of water rights, and the construction of dams or bays to form the furnace and hammer ponds, a considerable amount of capital was required. The furnaces also, with their accessories, were comparatively expensive structures. The result was first of all a gradual disappearance of the small man, and second, a shift in the position of the industry, for to save the cost of carriage it now became necessary to establish the works as near the sea-coast as possible. In 1543 took place the great event in the history of the industry, the founding of the first cast-iron gun at Buxted. These guns were much cheaper than the bronze guns previously used, and soon became a prominent feature in the Sussex trade. The demand for them was great all over the Continent from the reign of Elizabeth down to the time of Charles II. There was, however, a great outcry in Parliament against the trade, both on account of the great consumption of wood and on the ground that the export of ordnance was against the public interest. In 1658, which Mr. Jenkins regards as the culminating point of the industry, there were thirty-five furnaces and forty-five forges in the Wealden area. The decay of the industry seems to have been rapid thereafter, and Mr. Rhys Jenkins rejects the notion that it was due to the competition of the coke furnace: for this competition did not become serious till after 1750, at which time the Sussex industry was already decaying. Nor does he believe it to have been due to failure in the supply of fuel. A more probable reason seems to be the difficulties in regard to the supply of water for power, necessarily much greater than in the northern and western counties, and possibly foreign competition in the London market, that to which most of the product must have gone.

**Coal Production in 1920.**—An article in *Nature* for May 6 gives a summary account of the world-production of coal in 1920, so far as the facts are available. It is stated that in that year production, though showing a great increase on 1919, still fell short of that of 1913 by 42 million metric tons. In France, owing to the destruction of the mines, the output (excluding that of the Saar and Alsace-Lorraine fields) was 46 per cent. less than that of 1913. In Germany (the Saar and Alsace-Lorraine fields being again excluded) the drop was 24 per cent. in

bituminous coal, but there was an increased production of lignite. In Eastern Europe the decline was naturally very great, but the absence of reliable data makes it impossible to give figures. Belgium, on the other hand, had in 1920 practically reattained her pre-War rate of production. Great Britain showed a decline of 20 per cent.

The net result is that in 1920 Europe had lost her position as the main coal-producing continent. In 1913 54 per cent. of the world's output came from Europe; in 1920 the figure was 46 per cent., North America having advanced to the first place. The greatest percentage increase in North America took place in the United States, where the figures are 38·5 per cent. for 1913, and 45·1 per cent. in 1920. But of the total amount produced, only 22,500 tons rank as sea-borne exports, most of the increase having been absorbed within the country.

## EDUCATIONAL.

**Geography as a University Subject.**—In view of the progress which has been made in recent years in the teaching of advanced geography, the following table showing its present position in the Universities of Great Britain is of interest.

| University. | Faculty of Arts (including Commerce). | Faculty of Science. | Honours School. | Certificates, Diplomas, and Special Notes. |
|---|---|---|---|---|
| Edinburgh. | Recognised subject for ordinary degree. Compulsory for B. Com. | ... | Optional subject for degree in Arts with Honours in Econ. Science. | Diploma (post-graduate). |
| Glasgow. | Recognised subject for ordinary degree. | Recognised as principal or subsidiary subject for pass and honours degrees. | Honours subject in Science only, higher degrees, Ph.D. and D.Sc., granted for geographical research. | ... |
| St. Andrews. | ... | ... | ... | ... |
| Aberdeen. | Recognised subject for ordinary degree. Compulsory for B. Com. | Recognised as full subject for ordinary degree. | Honours degree in Geography in Faculty of Arts; recognised as Honours subject in Faculty of Science. | . |
| Bristol. | Full subject in Arts. | Inter. stage in Science. | No Honours School at present. | Special course for teachers. |
| Cambridge. | Recognised subject for ordinary degree since 1905. | ... | Tripos established, Jan. 1919. | Diploma (roughly equivalent to Class II in Part I of Tripos). |
| Leeds. | Full subject in Arts. Optional in Inter. and Final for B. Com. | Full subject in Science. | Honours School in Faculty of Arts established, 1919. | Special diploma for teachers of Geography. |

| University | Faculty of Arts (including Commerce). | Faculty of Science. | Honours School. | Certificates, Diplomas, and Special Notes. |
|---|---|---|---|---|
| Liverpool. | Full subject in Arts. Two-year subject normally in B.Com. and Diploma in Commerce. | Science students may take one-year course in Geography. | Honours School established, 1917. | Certificate (two-years' course). Diploma proposed and regulations under consideration. |
| London. | Full subject in B.A., B.Sc., (Econ.) and in B.Com. | | Honours School established, 1921. | Academic Diploma (internal and external). |
| Manchester. | Full subject in Arts. Compulsory for B.Com. Optional special subject in Honours School of Economics. | | None. | Diploma (post-graduate). |
| Nottingham. Reading. Southampton. | Full subject in Arts. | Under consideration. | Honours School. | Position of Geography determined by University of London. Wessex Diploma at Southampton. |
| Oxford. | Recognised subject in Arts. | | Honours course has been drafted. | Certificate and Diploma (post-graduate). |
| Sheffield. | Subsidiary subject (one year) in Arts. Subject in Honours School of Economics. | Full subject in Science (two years). | None. | Honours under consideration. |
| Wales. | Full subject in Arts. | Full subject in Science. | Honours School. | Syllabus same for both Faculties with alternatives for purposes of specialisation for Honours. Also Diploma (post-graduate). |
| Birmingham. | Inter. stage in Arts. Subsidiary final in Commerce. | .. | .. | .. |
| Newcastle. (Armstrong College). | Geography is only a nominal subject. In theory it is a subject in the Faculty of Arts, but not in Science. Some classes in Economic and Commercial Geography are held in the Faculty of Commerce. | | | |

## NEW BOOKS.

### EUROPE.

*Serbia and Europe*, 1914-1920. With a Preface by Dr. L. Marcovitch. London: George Allen and Unwin, Ltd., 1920. *Price* 16*s*.

This book consists of a collection of articles by a number of Serbian politicians and publicists, published at Geneva during the period 1916-1919, and here translated into English. The interest of the articles is now of course chiefly historical, but they are of value in shedding light on Serbian policy during the latter part of the War, and in giving the views of a number of her public men on the problems which presented themselves during its course.

*Les Turcs et l'Europe.* Par GASTON GAILLARD. Paris: Chapelot, 1920. *Prix* 8 *francs.*

M. Gaston Gaillard has written, during the War period, various books dealing with its problems. The present volume gives a brief summary of Turkish history up to and including the years of war, and then proceeds to examine in detail the provisions of the Turkish treaty. To that treaty, in its spirit and in many of its details, he is strongly opposed, regarding it as contrary to the interests of France, and as likely to give rise to new conflicts in the future. Since, however, the discussion follows purely political lines, and is not without that acerbity which seems inseparable from political writings, his book is not well adapted for detailed review in a scientific journal. It may be sufficient to say that its author puts forward with much vigour a point of view which is relatively unfamiliar to the English-speaking peoples. For this reason his book should be read by all who desire to form a sane judgment on the difficult problems of the Near East.

*Walks in Rouen.* By JOCELYN PERKINS. London: Society for Promoting Christian Knowledge, 1920. *Price* 5*s.* 6*d.*

A handy little book of convenient size, well printed, and with some good illustrations, which describes the chief monuments of the town, and gives some account of its history. The text will be found rather didactic for some tastes, for its author has not altogether succeeded in avoiding the pulpit manner; but the gist of the matter is there.

*In Denikin's Russia and the Caucasus*, 1919-20. By C. E. BECHHOFER. With an Introduction by Professor ALFRED E. ZIMMERN. London: W. Collins Sons and Co., Ltd., 1921. *Price* 10*s.* 6*d. net.*

Mr. Bechhofer, who was previously well acquainted with Russia and the Russian language, went in the winter of 1919-20 as a free-lance journalist to Batum and Tiflis, then to Rostov and Taganrog, the headquarters of General Denikin's armies. After Denikin's retreat he spent some time in Ekaterinodar and Novorossisk, and later returned to the Caucasus, where he revisited Batum and Tiflis, and went on to Erivan and Baku. As he himself says, his book is largely a study in demoralisation, and the account of his personal experiences, especially during the period of retreat of the Volunteer armies, gives a terrible picture of the suffering endured by the peoples of South Russia, and of the general collapse of order and even of civilisation. In the sections dealing with the Caucasus region he makes a vigorous attack upon the new republic of Georgia, and is exceedingly outspoken on the subject of the "betrayal of Armenia," a question also discussed by Professor Zimmern in his somewhat provocative Introduction. Mr. Bechhofer's general conclusion would appear to be that, sooner or later, in some fashion or other, the Caucasus region, no less than the Ukraine, must return to the Russia of the future, but he has no solution to offer of the "riddle of Russia."

*Dantzig and Poland.* By Professor SIMON ASKENAZY. Translated from the original Polish by WILLIAM J. ROSE. London: George Allen and Unwin, Ltd., 1921. *Price* 8*s.* 6*d. net.*

Originally published in 1919, when it was "intended to foreshadow the future of the city in a restored Union with the restored Polish Republic," this book was later translated into French and into German. Its appearance in an English dress

is said by the author to have been due to a hope that "it may foster reflection and help to repair the mistakes which have been committed." The quotations indicate the author's point of view. The book discusses the history of the town from about the fourteenth century till the war period, and quotes a statement of Bismarck, made in 1894, that "Dantzig would be the first desideratum of a State, with Warsaw as capital. It would be the *conditio sine qua non* of a Polish Republic." There are many notes giving full references.

*The Memoirs of Count Witte.* Translated from the Original Manuscript and edited by ABRAHAM YARMOLINSKY. London: William Heinemann, 1921. *Price* 21*s. net.*

*The Ordeal of a Diplomat.* By CONSTANTIN NABOKOFF. London: Duckworth and Co., 1921. *Price* 15*s. net.*

So little detailed or reliable information is at present obtainable in regard to what was the great Empire of Russia that no apology is necessary for drawing attention to these two books here, though neither can be said to be directly geographical. Both throw much light upon recent events and their causes.

Count Witte's *Memoirs*, despite the fact that he did not die till February 1915, only come down to the year 1912, and are thus entirely pre-War. Further, though the Count was born in 1849, they deal chiefly with the period just before the Russo-Japanese War, with the political aspects of that war and of the Treaty of Portsmouth, with which he had so much to do, and with the abortive revolution of 1905, itself the immediate precursor of those of 1917. The book may be said to be one of almost unrelieved gloom, giving a terrible picture of administrative incapacity, frivolity, and corruption, all the more tragic perhaps in that the author did not live to see the resultant catastrophe. One anecdote may be quoted, as in a sense it serves as a parable, indicating the inherent difficulty of running a mediæval autocracy in the modern world. In 1888 Witte was director of the Corporation of South-Western Railroads, a private concern. In that year the Emperor Alexander III. travelled to Yalta over these lines. As was usual, the schedule of the journey was drawn up by the Minister of Ways and Communication, without consultation with the railway officials. When, at the last moment, it was communicated to Witte, he perceived to his horror that the speed arranged for was quite unsafe, in view of the weight of the royal train and the state of the permanent way. He ran the train through in fear and trembling, and then made in person a strong protest, stating definitely that in future the speed must be reduced. His reward was a severe rebuke from the Emperor himself, coupled with a truly mediæval allusion to the fact that the line had been constructed with Jewish money. Two months later, on another journey in the same region, the royal train, travelling at the speed against which Witte had protested, met with an accident which led to the death of twenty-one people, the wounding of thirty-seven, and serious damage to the dining-car in which the Royal party were seated at the time. The incident had the result of starting Witte on his official career, but the conviction that the laws of nature did not apply to the heads of the Russian administration appears to have persisted—with the effects which the world has seen.

Mr. Nabokoff's book presents a strong contrast to Count Witte's, and owes its interest largely to this fact. For it reminds us that Russia is too big to be summed up in any formula. Count Witte is entirely Eastern in his outlook—never perhaps so Eastern as when, in commenting upon the dreadful disaster at the coronation of Nicholas II., and on a remark made in regard to it by the Chinese

plenipotentiary at the time, he adds, "I thought to myself, After all, we are ahead of the Chinese." But Mr. Nabokoff is of the West entirely, and his book thus makes a stronger appeal to our sympathies. In it, after a brief account of his early experiences in India, he describes his four years in London, first, from December 1915 to January 1917, as Counsellor of the Russian Embassy, and then, in a position growing steadily more and more anomalous as time went on, as Chargé d'Affaires till September 1919. It describes, in forcible fashion, the feelings with which an educated and patriotic Russian saw his country gradually passing from the ranks of the world states. It should be read by all who wish to form a clear conception of the Russian problem to-day.

## ASIA.

*Cashmere: Three Weeks in a Houseboat.* By A. Petrocokino, F.R.G.S. London: Longmans, Green and Co., 1920.

This is a pleasant description of a brief holiday in Kashmir spent in a house-boat, or, more accurately, in a native dunga. Srinagar was the author's centre, and from here he visited the adjacent Lake Dal, which is in process of being reclaimed by the people living on its shores, and then travelled up the Upper Jhelum to Islamabad, about forty-seven miles by water, and near the farthest point to which the river is navigable. Various excursions were made to objects of interest in the neighbourhood of the river, and, for the sake of others who may wish to follow his example, the author gives full practical details of his tour and its cost.

*The Re-birth of Korea: The Reawakening of the People, its Causes, and the Outlook.* By Hueng-Wo Cynn. London: Central Board of Missions, 1920. *Price* 10*s.* 6*d.*

A Korean by birth, the author of this book was educated in the University of Southern California, and is now principal of a school in Seoul. During a visit to the States in 1919 he delivered various lectures in certain Eastern centres of learning, and these lectures, with some other material, constitute the book. It describes the incidents which took place in Seoul in March 1919, and their sequel, and discusses generally the relations of Japan and Korea. Since the problems involved are wholly political they can scarcely be discussed here, but the book is worthy of note by those interested in Far Eastern problems.

*Geology of Mesopotamia and its Borderlands.* London: Geographical Section of the Naval Intelligence Division, Naval Staff, Admiralty, 1920. *Price* 5*s.*

This useful official publication compiled from various sources gives in small compass a general account of the imperfectly investigated geological features of Mesopotamia and the adjacent parts of Arabia and the Persian borderland.

Mesopotamia is, like the plain of the Ganges, a flat tract of alluvial soil, mainly derived from the denudation of the Persian and Taurus highlands. The flood plain is 300 miles long by about 70 wide, and has advanced into the Persian Gulf at the rate of a mile in thirty years during historic times. At the time of Alexander the Great (325 B.C.), the Tigris and Euphrates and other rivers that now enter the Gulf in one stream had all separate mouths. Of these rivers, the Tigris brings down the greatest load of sediment, derived from the Persian highlands, and during floods has four and a half times as much suspended mud as the Nile, and the delta of Lower Mesopotamia is stated to be six times larger than that of the Nile. The Persian highlands on the north are intersected by deep cañons,

through which the tributaries on the northern or left bank of the Tigris pour their turbid floods from the melting snows over the plain below. The mountain borderland of Mesopotamia contains many of what are called "tangs" or cleft gorges due to tension of the rock surface and not to erosion by water, and these tangs form a peculiar physiographical feature of the region.

The general reader will no doubt be most interested in what is related about the oil possibilities of Mesopotamia. The oil occurs along the Persian front, none having ever been found on the opposite or Arabian border of Mesopotamia. Various and indeed most precious metals and minerals occur in the mountain plateau round Upper Mesopotamia, but these cannot be worked to advantage till the means of transit are improved, and good roads and railways are constructed. But the great oilfields worked by the Anglo-Persian Company near the mouth of the valley are now being actively developed. The oil-bearing strata occur in a zone extending at intervals all the way from Mosul to Bagdad and the Persian Gulf, a distance of some 500 miles, but it is only at the eastern end of the oil belt that extensive commercial developments have so far taken place. The possibilities of the whole region as an oilfield have been known for over 2000 years, and it is important to the British Empire to have now acquired in this ancient oil-bearing region a good oilfield of such potentialities.

This little handbook supplies concisely much valuable and original information about the geological and physical features of a region which has been as yet very imperfectly explored and is badly in need of a settled Government to permit of its being safely investigated.

*In Furthest Burma.* By Captain F. Kingdon Ward, B.A., F.R.G.S. London: Seeley, Service and Co., 1921. *Price* 25*s. net.*

In April 1914 Captain Ward started out from Rangoon in order to undertake an ambitious programme of research and exploration on the borderland between Burma and Yunnan, with the intention of making his way finally into Assam. The difficulties of the country, a serious break-down in health, and the outbreak of war prevented the whole programme being carried out, and the journey was confined to what the author calls the Irrawaddy triangle, an interesting and little-known belt of country. The triangle has its two sides defined by the two headstreams of the river, the Mali or western fork, and the 'Nmai or eastern, which converge at a point some twenty miles north of Myitkyina, the terminus of the Burma railway. The western stream flows through mountainous and difficult country, receiving many great tributaries from the actual frontier, the divide between the Irrawaddy and the Salween. On the west bank of the Mali, on the other hand, some 1200 miles from the mouth of the main river, lies the fairly extensive plain of Hkamti Long, permanently occupied by Britain in January 1914. Captain Ward's route from Myitkyina may be said summarily to have taken him northward parallel to the 'Nmai River, then across the base of the triangle to Hkamti Long, and southward to railhead again parallel to the Mali. His primary object was botanical research, but he devotes a considerable amount of space in his book to the question of Chinese penetration into this region, over the Yunnan frontier, and to the possibility of establishing communication with Tibet and with Assam from Burma, *via* Hkamti Long.

The book gives a striking picture of the country, with its mixture of races, its wonderful wealth of flowers, and its pests, especially the land-leeches. A very curious account is given of the trade with China in coffin planks over the Burmese frontier. The tree furnishing the planks is a juniper, much prized for its scented

wood, which grows in the mountain valleys, between 6000 and 8000 feet above sea-level. The planks are said to weigh 100 to 140 lbs. when freshly cut, and 60 to 80 lbs. when dry. They are cut by Chinese carpenters, who come over from Yunnan for the purpose, and floated downstream in groups of ten, to be stocked for the winter. In early summer they are then carried over the pass by coolies, each man taking one plank, which seems an extraordinary feat of endurance, as the journey lasts about ten days. The point is of much interest, as showing how a steady demand for a commodity will produce a supply even when the difficulties of transport seem enormous. The geographer will find many other facts of great interest in the book, which has also some good illustrations.

*Tombs, Tents, and Gardens.* By D. S. Bastavala. Printed for private circulation at Bombay, 1920.

This little book, of which a copy has been presented to the library, contains an account of a visit to Delhi and Agra paid in 1920. The author is a young Parsee lady, resident in Bombay, who made the journey with a party of friends, was most intensely interested in all that she saw, and succeeds in imparting her own interest to her readers. She draws many comparisons between her experiences in these north-western towns and those in her own town of Bombay, thus throwing much light on certain aspects of Indian life. We recommend the book cordially to our members, who will find in it much to charm and to instruct.

*A Historical Geography of the British Dependencies.* Vol. vii. *India: Part* II. By P. E. Roberts. Cr. 8vo. Pp. 387 to 598. Oxford: Clarendon Press, 1920. *Price* 7*s.* 6*d.*

Part I. of the *Historical Geography of India*, reviewed in the *Scottish Geographical Magazine* for May 1917, covered the period of the East India Company, viz. up to 1858. In that year India passed from the hands of the state-controlled Company to the direct government of the Crown. Part II., now published, covers the period, 1858-1919, of strong paternal government, when, with increasing assistance from Indian representatives, and with conscious rectitude of aim, British statesmen and civil servants did their best for India, and, not regarding overmuch the political consequences, introduced new ideas and modern life to the people, and particularly the middle classes, of India. Part III., when it comes to be written, will begin with the Montagu-Chelmsford democratising of the government of India.

Is it unavoidable that a Historical Geography should deal specially with frontier questions and with external relations rather than with internal affairs? It would almost appear so. Within India, before Part II. opens in 1858, the boundaries of British India and the Independent States had been finally demarcated; but all round external frontier questions remained, and this volume shows the natural if not the unavoidable concern of a Historical Geography with such. No one would contend that trans-frontier affairs like the Second Afghan War, the Third Burmese War, the Tirah Campaigns, the Tibet Expedition, and the relations with Persia were of themselves vitally important to India, interesting and internationally important although each one of them is. Yet these bulk more largely in the volume than visitations of famine and plague, extension of education, of railways, of irrigation-canals, the rise of self-government, the fluctuations of exchange, the areas of permanently settled land-revenue, and the like, with all of which the period covered is closely concerned. Not one of the maps illustrates these latter matters, all are connected with the former. Perhaps the disproportion seems all the greater since the close of the Great War. To take one

instance only. With Russia broken up and a negligible factor in foreign politics, the problem of Afghanistan has become comparatively unimportant. With Russia out of view, Afghanistan has ceased to be a buffer state to be protected, subsidised, and limited in her foreign relations. The subsidy, in fact, has been discontinued, and the Amir is now free to receive an envoy from any country whatsoever.

As a moderately expressed, carefully studied, and would-be judicial estimate of the course of events during the last sixty years, this Second Part of the *Historical Geography of India* greatly commends itself. India suffers greatly from the championship or criticism of very ill-informed persons, native and European, and from the prejudgments of mere party politicians. Problems of the Indian continent require specialists, or at least a knowledge of the history of the earlier stages of the problems. Study of this introductory manual may be commended to any one who wishes to know how the India of to-day has come about.

*Japan Real and Imaginary.* By SIDNEY GREENBIE. Harper and Brothers, 1920. 452 pp.

*Japanese Impressions, with a Note on Confucius.* By PAUL-LOUIS COUCHOUD: English Translation by FRANCES RUMSEY. John Lane Company, 1921. 155 pp.

These two recent additions to the growing literature on Japan are of more than ordinary merit and significance. They are the works of authors possessing discrimination and judgment and literary gifts of a high order. Each writes from knowledge gained by a fairly long sojourn in the country; and yet the two books differ markedly both in their plan and in their effect upon the mind of the reader. The French philosopher limits himself mainly to a discussion of what might be called the artistic qualities of the Japanese mind as evidenced in custom, in ritual, in art, and in poetry. In the treatment of these many details of everyday life are introduced more or less incidentally, and one of the chapters is practically a reproduction of the diary which M. Couchoud kept during the excitement and ferment which preceded the war with Russia. The chapter is headed "Japanese Patriotism," and many of the somewhat extravagant outbursts of feeling are quite comparable with our own experiences in the early days of the Great War. It is curious to note the eagerness of the popular mind to find encouragement in absurd omens and childish superstitions. The chapter on the Lyric Epigrams of Japan forms the most characteristic feature of the book, and the author has clearly saturated himself with this peculiarly Japanese type of poetry. To express a fleeting picture in eleven syllables and call it a poem cannot, however graceful and compact of meaning it is, be reckoned satisfactory from the Western point of view. The truth is that our best poets give such "epigrams" in endless number throughout their poems. Many quotations from Shakespeare are just such things. The Japanese mind is content with it by itself, just as he is content with one picture or one flower to decorate his dwelling. M. Couchoud has become entranced with certain aspects of Japanese life, or, perhaps more accurately, with what he reads into them; and the reader will find a very wholesome corrective to the general tendency of the Frenchman's praise of things Japanese by perusal of Mr. Greenbie's pages, with their wider sweep, their keener criticism, and their no less true appreciation of what is best in the Land of the Rising Sun. The book is extremely well illustrated, and to each picture is attached a sentiment or adage which hits off its inner meaning, and brings it into relevance with the text. What Sidney Greenbie means by the word "Imaginary" in the title is not easy to say; but any one who knows Japan will endorse to the full the "Real" Japan here

presented. The Japanese, in fact, are just as human as other peoples, and display, no doubt in their own way, that curious blend of the sordid and the sublime that characterises all types of humanity.

The Note on Confucius with which M. Couchoud ends his volume describes a visit to the City of the Master and the thoughts and impressions thereby awakened. It is a beautifully written essay, visionary, almost mystic indeed, and an exquisite tribute to the memory and abiding influence of a great teacher. One feels a little dubious, however, in the exaltation of a writer who would raise an edifice "in which the Greek perfection shall be combined with the Chinese amplitude," as if these contained the last words of wisdom for a struggling world.

*Topee and Turban, or Here and There in India.* By Lieut.-Col. H. A. Newell, I.A. London: John Lane Company, 1921. *Price* 21*s.*

This book, which is copiously illustrated from photographs, consists of a series of sketches of Indian life which have previously appeared in periodicals. They have been written at different times and places, and deal with a great variety of subjects, ranging from Kashmir in the north-west to Mahamallipuram in the south-east. Some, like the account of a journey from Srinagar to Anantnag by river in a doonga, deal with actual expeditions, while others, notably the chapter on the Todas, which has some very interesting photographs, are of the nature of general articles. Pleasantly written, and not making any very great strain on the reader's attention, the sketches may be recommended to those who wish to supplement more serious studies of India and its problems.

*Shells from the Sands of Bombay: Being My Recollections and Reminiscences*, 1860-1875. By Sir D. E. Wacha. Bombay: Indian Newspaper Co., Ltd., 1920. *Price Rs.* 3.

In his Foreword to this volume—which consists of a collection of articles contributed to the *Bombay Chronicle*—Sir Stanley Reed points out how rapidly the city of Bombay is changing and has changed. He states that his own recollections go back only to 1897, and yet the present city is hardly recognisable as the same as that in which he landed then. Since the recollections of the author of the book go back to the period before Sir Bartle Frere levelled the ramparts, he has obviously seen far greater changes, and he is able to describe them in a fresh and piquant fashion. There are some curious illustrations of Old Bombay, and the book gives a considerable amount of detail in regard to the development of the commerce of Bombay.

## AFRICA.

*The South and East African Year-Book and Guide for 1921. With Atlas.* Edited by A. Samler Brown and S. Gordon Brown. London: Sampson Low, Marston and Co. *Price* 5*s.*

Various changes in matter and form have been made in this the twenty-seventh issue of this useful handbook. Thus the place of the folded maps has been taken by a more convenient series of small maps at the end, much less likely to be torn in use. For the first time also notes on Lisbon, as a port of call on the way to South Africa, and on Mauritius, as a possible holiday resort for South Africans, have been added. Further, the energetic campaign now taking place with a view to encouraging British emigration to South Africa finds echoes in the present issue. Thus we are told that coal there costs only half the price paid in the United Kingdom, while income tax is only 1s. in the pound, and that the general levelling

up of the cost of living in the two regions renders South Africa now attractive to quite a different type of immigrant from those to whom it formerly appealed

*Sun, Sand, and Somals: Leaves from the Note-book of a District Commissioner in British Somaliland.* By Major H. Rayne, M.B.E., M.C. London: H. F. and G. Witherby, 1921. *Price* 12*s.* 6*d. net.*

The doings of people in the outposts of Empire always make a strong appeal, and Major Rayne has set before us a lively sketch of the little-known port of Zeila in British Somaliland. There is less told of sport than is usual in such books, apparently for a good and sufficient reason, but as District Commissioner he has learnt to know the people intimately, and his chapters give a vivid pen-picture of these "fascinating devils," as he calls the Somals. Life among them has its thrills, as when he attended a tea party at the house of Hayoun the Jew, and was received on the flat roof top with a discharge of musketry which suggested that he had been drawn into an ambush. He has a deep and sympathetic interest in his troublesome flock, and a good-natured humour which must have carried him through many rough places. His last chapter tells of the campaign, in which he was Transport Officer, in the early weeks of 1920, which ended the reign of terror of the Mad Mullah. As the evil-doer himself was never captured, his remaining followers are free to proclaim that Allah sent his angels and wafted him to Paradise.

## AMERICA.

*The American Indian.* By Clark Wissler, Curator of Anthropology in the American Museum of Natural History. New York: McMurtrie, 1917. *Price* 3 *dollars.*

The nature of this volume is sufficiently indicated by its title. It extends to 435 demy 8vo pages in addition to the table of contents, is copiously provided with maps, diagrams, and other illustrations, has a bibliography of 25 pages and a good index. From the introduction we learn that its aim is to answer these questions, "How came the Indian here? [that is, to America]. Who were his ancestors? What knowledge and habits did he bring with him? What has he accomplished on his own initiative and how did he achieve it?"

The author's general conclusions may be summarised thus—that it must be taken as definitely settled that New World man migrated thither from Asia where his nearest relatives still reside; that there are evidences of a certain unity in the fundamental culture over all parts of the New World, but few close parallels between these and the fundamentals of the Old World, and that accordingly there is little choice but to recognise that the cultures of the New World places were developed independently of the ancient centres of higher culture in the Old pp. 355 to 357.

*La République Argentine: La mise en valeur du pays.* By Pierre Denis. Paris: Armand Colin, 1920. 14 *fr.*

Within the limits which he has set himself, M. Denis has produced an admirable description of the Argentine Republic. For the task he qualified himself by a sound geographical training, over two years' residence in the country, and a careful and extensive study of the literature of his subject. The method which he has adopted is regional, and successive chapters deal with the oases of the north-west and pastoral life, Tucuman and Mendoza, the exploitation of the forests, Patagonia and sheep-raising, and the Pampean plain. Each of those regions is

subdivided according to diversities of soil and climate, and the influence of geographical and historical conditions upon the economic development of each subdivision is carefully discussed. In the concluding chapters, which deal with the main routes and railways, the waterways, and the distribution of the population, many of the factors affecting the foreign trade of the country are considered. The book is illustrated by several simple but effective sketch-maps.

For the student of the geographical and economic conditions of the Argentine the book is indispensable. It is, however, a matter for regret that the difficulty of obtaining statistical and other information has made it impossible for M. Denis to discuss, except in a somewhat summary fashion, the effect of the War upon the development of the country. There are various matters in the recent history of the Argentine upon which one would wish to have his well-informed and illuminating judgment. Perhaps in a second edition he may be induced to let us have it.

*A Summer Tour* (1919) *through the Textile Districts of Canada and the United States.* By A. F. Barker, M.Sc. Jowett and Sowry, Ltd., Leeds, 1920.

Mr. Barker is Professor of Textile Industries in the University of Leeds, and one naturally takes up his book in the hope of finding a more or less adequate account of the textile industries of Canada and the United States. This hope is not fulfilled. Of the two hundred pages or so which the book contains, only about twenty are even remotely connected with textile pursuits. For the most part we have descriptions of places which have been many times described, and reflections which do not impress one as strikingly original.

*The Splendid Wayfaring.* By John G. Neihardt. New York: The Macmillan Company, 1920. *Price* $2.25.

The sub-title of this book is lengthy, but since it adequately summarises its contents it may be quoted in full—"The Story of the Exploits and Adventures of Jedediah Smith and his Comrades, the Ashley-Henry Men, Discoverers and Explorers of the Great Central Route from the Missouri River to the Pacific Ocean, 1822-1831." Primarily intended for American schoolboys, the book, with its numerous quotations from contemporary writers, is well worth the attention of geographers. The motive which led the explorers to follow up the tributaries of the Missouri till, in 1824, Fitzpatrick succeeded in crossing the South Pass from the Sweetwater to the Little Sandy, that is from the headwaters of the Platte to those of the Colorado, was the search for beaver fur. The pioneers found that the Green River, into which the Little Sandy flows, was extraordinarily rich in fur, and their accounts stimulated further exploration. As indicating the abundance of the beaver in these early days we may note that General Ashley made an "ample fortune" as the result of his expedition in 1824-5 to the Green River area, and, having had previous experience of the speculative nature of such enterprises, decided to retire from the fur trade with his spoils. The amount of beaver fur collected by him in the course of this expedition is variously estimated at forty to one hundred and thirty packs, each pack containing about sixty pelts. The main means of transport was the horse, a fact which was a fruitful source of conflict with the Indians, from whom the animals were purchased. Since the Indian tribes were in a constant state of warfare with one another, and horses ranked only next to scalps as spoils of war, they had to be constantly watched. Nor did the trappers show any unwillingness to obtain by raiding animals from hostile tribes, so that reprisals on both sides were frequent, and added considerably to the other

difficulties of the trade. When the supply of horses failed, "bullboats" of the native type were used to navigate the shallow streams. Of the construction of these a detailed account is given, and it is stated that a bullboat ten feet wide by twenty-five feet long would carry over two tons, with a draught of no more than four inches. Though exceedingly clumsy, also, and apparently capable only of being used downstream, the boats, thanks to their dressing of bison tallow, had considerable power of resistance. The framework was made of willow twigs, woven into a kind of huge basket, dried bison hides being used as a cover.

The book has a useful sketch-map of the area discussed, and some interesting illustrations, and may be recommended to the notice of teachers.

## GENERAL.

*Products of the Empire.* By J. Clinton Cunningham, B.A. Oxford: The Clarendon Press, 1921. *Price* 5*s.* 6*d.*

This book is divided into two parts, the first being entitled "Food, Drink, Oil-seeds, Drugs, and Tobacco," and the second "Raw Materials and the Produce of the Mines." There is no definite statement as to the class of readers for which it has been written, nor in regard to its exact purpose, but we gather from the title and the conclusion that it is intended to show to what extent the commodities of international commerce are or can be supplied to the Mother Country by the lands attached to the British Commonwealth. The author also discusses, within certain limits, the means by which "we could realise our ideal and become a self-supporting empire, so that when the necessity arose we could be independent of supplies from foreign countries, and at other times could demand the respect due to those who are under no obligation to court the favour of more fortunate neighbours." But there is no consideration of the fundamental economic problems which underlie this "ideal." The value of the book to the geographer is further diminished by the fact that the conditions, physical, economic, and social, which determine whether the large-scale production of a particular crop for export in a given area is possible, are not considered in detail. There are a number of useful sketches of plants of economic importance.

*The Islands of the Pacific: or, The Children of the Sun.* By Lieut.-Colonel T. R. St. Johnston, late District Commissioner of the Lau Islands, Fiji, Author of *The Lau Islands (Fiji), and their Fairy Tales and Folklore, etc.* London: T. Fisher Unwin, Ltd., 1921. *Price* 25*s. net.*

How the Pacific Islands were peopled is one of the most fascinating of anthropological problems. Many hypotheses have been advanced. Mr. Reginald Enock and others have postulated the existence of an ancient continent uniting South America with Asia. On geological grounds this has been proved untenable. Colonel St. Johnston now shows that it is unnecessary. He has collected from many islands traditions which prove that the remote ancestors of the present islanders had large ships, and were accustomed to long voyages. One of the most interesting of these is a legend of a voyage to the far south, to the "frozen sea of *pia* (scraped arrowroot) . . . and the deceitful animal who dives to great depths . . . a foggy, dark place, not seen by the sun" (p. 44). This voyage took place in the seventh century A.D. The author considers that the original home of the Polynesians was somewhere between the Caspian Sea and the Persian Gulf. There a race of Turanian speech developed which discovered gold and pearls. Gradually they left their home, and voyaged in all directions in search of those desirable things. They were sun-worshippers, and built huge temples of morticed

stones. Colonel St. Johnston suggests that the megalithic ruins which are to be found all over the world from Salisbury Plain to Easter Island were the work of this people. Two main branches went eastwards—one through India, pushing before them the Dravidians. In Indonesia they were joined by the other branch which had come by sea, and thence both spread all over the Pacific. The existing islanders are therefore descendants of these mixed with Dravidians, Mongolians, and probably in the east with a back-wash from South America. Whether this theory will stand the test of time remains to be seen, but the author supports it with a wealth of argument, numerous references to authorities, and many corroborative items from his own investigations. For example, the Hawaiians when discovered did not use iron, but they had a word for it. We have said enough, we think, to indicate the scope of this work, and to suggest its interest and value. For anthropological details—burial customs, the tabu, cannibalism, totems, stone remains, language, and so forth—we must refer the reader to the book itself. It will undoubtedly take a high place among South Sea lore. It is well illustrated, has two useful maps, a brief descriptive list of the island groups, and an index.

*The Diary of a Yeomanry M.O.* By Captain O. Teichman, D.S.O., M.C. London : T. Fisher Unwin, Ltd., 1921. *Price* 12*s.* 6*d. net.*

During the War Captain Teichman served in Egypt, Gallipoli, Palestine, and Italy, and kept a diary of his experiences. Part of this was subsequently lost, and the remainder forms the basis of the present book. In his preface the author apologises for the apparently trivial incidents of the daily routine which has been included. But since the main facts of the various campaigns have been told and retold many times, most readers will turn with special interest to these personal experiences, which often cast much light on the special conditions in each area. We may mention, for example, a little note recording the capture of a chameleon at the camp near Ballah, on the Suez Canal. Later many of these animals were tamed and kept in the mess tent, where they proved most useful in keeping down the flies. One, known as Cuthbert, was observed to eat fifty flies before breakfast! This short note, like another on the method adopted to purify water containing the parasitic worm *Bilharzia* before it could be used for washing purposes, epitomises much that another writer might have elaborated in many pages. The most interesting sections of the book are perhaps those devoted to Palestine. We would draw attention especially to the description of the curious underground "wells," really flooded caves, at Khasif, a few miles west of Beersheba, and to the account of the Jaffa-orange groves belonging to the Jewish colony at the village of Deiran. Wine is also made, and it is noted that every house in the village has its own water-supply laid on. Even those who are satiated with War books will find much to interest them here. There are some illustrations and a number of simple sketch-maps.

*Nile and Jordan : Being the Archæological and Historical Inter-relations between Egypt and Canaan, from the Earliest Times to the Fall of Jerusalem in A.D.* 70. By Rev. G. A. Frank Knight, M.A., F.R.S.E., College and Kelvingrove U.F. Church, Glasgow ; sometime Thomson Lecturer on Natural Science in the U.F. Church College, Aberdeen. London : James Clarke and Co., Ltd., 1921. *Price* 36*s. net.*

While this work as a whole is outwith the scope of a geographical magazine, there is no doubt of its geographical foundation. The age-long connection between Egypt and Canaan as demonstrated by the author depended not only on the

propinquity of the two lands, separated by an easily traversable strip of desert, but also on certain geographical affinities. Leaving out of account disputable "eoliths," the author shows that palæolithic man existed in both lands, and had inter-communication along a trade-route which exists at the present day. Thereafter the story is carried on through the neolithic age and the early dynasties to biblical times. In this connection the Exodus is considered by the author to have occurred during the reign of Amenohotep II. 1461-1436 B.C., and not under Rameses II. as hitherto generally accepted. Many other important problems are discussed from fresh material and from an independent standpoint. We have said enough, we think, to recommend this exhaustive work to those of our readers who are interested in the history of Egypt and the Holy Land.

## EDUCATIONAL.

*The Progress to Geography.* Edited by RICHARD WILSON, B.A. (Lond.), D.Litt. (Edin.). Stage I. and Stage II., Pictures and Conversations; Stage III., Myself and my Country; Stage IV., The British World. 4 vols. Cr. 8vo. Pp. 144, 176, 224, 256. London: Macmillan and Co., Ltd., 1920. *Price* 2*s.* 6*d.*, 3*s.*, 3*s.* 6*d.*, 4*s.*

Children will find this a pleasurable series. In fluent, simple language, and in enticing manner they are introduced to great geographical truths regarding their own country and its possessions, but throughout they have to exercise their intelligence. Each volume deals particularly with the human aspect of geography. It is gratifying to notice that great insistence is laid on the use of globes from the earliest stages of instruction, and that the interplay of exports and imports is treated in such a way that children can be led to appreciate and understand what might otherwise be bald and matter-of-fact tables. It is regrettable that attention must be drawn to the inaccuracy in the last two paragraphs on p. 23, Stage II. The plentiful illustrations illuminate the letterpress with marked success.

*Indledning til det Geografiske Studium ved Kφbenhagen.* By H. P. STEENSBY. Copenhagen: Henrik Koppels Forlag, 1920.

This is a general introduction by Professor Steensby to the Geography courses at Copenhagen University. It is in three parts—general survey, history of geography, terminology and salient facts of geomorphology, respectively. Concise and summary, it loses considerable value by being entirely without diagrams.

1. *Some Investigations in the Theory of Map Projections.* By ALFRED ERNEST YOUNG. London: Royal Geographical Society, 1920. *Price* 6*s. net.*

2. *Topographic Maps and Sketch-Mapping.* By J. K. FINCH, C.E., A.M. Pp. xi + 175. New York: John Wiley and Sons: London: Chapman and Hall, Ltd., 1920. *Price* 13*s.* 6*d. net.*

3. *Map Reading.* By G. H. C. DALE. Pp. 170 + Plates I.-XX. London: Macmillan and Co., Ltd., 1921. *Price* 7*s.* 6*d. net.*

1. This work, No. 1 of the Royal Geographical Society's Technical Series, owes its origin to the war-time need for transformation of maps from one projection to another, and particularly to the modified Polyconic of the 1 : 1,000,000 International Map. It is concerned mainly with minimum error in projections, and is necessarily highly mathematical. The first two chapters deal with minimum error zenithal and conical projections respectively, and include some which, though useful, are not common, and others whose interest is mainly mathematical.

Chapter III. on Lambert's Second (conformal) for the spheroid, is an interesting complement to the U.S. Coast and Geodetic Survey special paper on the subject. Polyconic projections supply the matter of Chapter IV., and the two remaining chapters deal with finite errors of projections and with the convergency of the meridians. These we should gladly see expanded.

2. This is in several ways a useful and interesting book. Part I., on map reading, is, on the whole, very practical. Relief and contours are very sanely treated, and there are one or two diagrams of decided merit. In Part II., sketch-mapping is less satisfactorily done. Compass work is not touched, and the only methods of plane survey treated are, traverse by pacing, and the use of the "sketching-board," which is so elaborately equipped as to be a serviceable plane-table. There are advocated the unnecessary (as a rule) practice of traverse (by pacing) with this board, and the abominable habit of sticking pins in it to serve as pivots for the alidade. The vital matter of having a check on work at each step is only perfunctorily dealt with. Survey of relief is done by means of a "simplified" clinometer. Here there is room for a note on the limits of distance at which it may be used. The appendix contains a useful annotated bibliography of topographic maps produced by State surveys: with a little more war experience the Americans would not be so enthusiastic about French mapping. Exercises on most of the sections are given: they are notable rather for forthrightness than for ingenuity and value. On the whole the illustrations are very good, but many reproductions of parts of maps are bad: thus figure 5 is a slander on an excellent O.S. 1-in. map, and even the frontispiece (in colour) does no justice to the new 1:50,000 French map.

3. This book is written as a course of lectures leading up to a military examination, and its interests and outlook are mainly military. It deals with the interpretation of map symbolism from the strategic and tactical points of view. Somewhat rough diagrams and inaccurate figures discount its value to some extent. It is furnished with examples to be worked by the reader, and with two appendices on the elementary arithmetic required in working concisely the numerical problems.

*Principles of Human Geography.* By Ellsworth Huntington, Research Associate in Geography, Yale University, and Sumner W. Cushing, late Head of the Department of Geography in the State Normal School, of Salem, Mass. New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1921.

We wish to say at once that we have found this book extraordinarily stimulating, and consider it a worthy product of the great American school of geography. In a review of Mr. Huntington's former work, *Civilisation and Climate*, we hinted that there was sometimes a considerable superstructure of theory for a slender basis of fact, but we are bound to state that in the present volume this objection is to a very large extent removed. Every sentence, it might almost be said, demands thought, and every paragraph sustained thought. The reproductions of photographs are real illustrations, and in themselves suggest essays, while the maps contain only such detail as is required to elucidate the subject in hand. In this connection we offer our only adverse criticism. It is that the railway maps of the continents (Chapter III.) are much too sketchy, and indeed are also incomplete. For instance, in Europe (Fig. 29 C) the through connection to Athens is not shown; in Asia (Fig. 29 D) the Hankau-Canton line is represented as complete; in Africa (Fig. 29 E) the Benguela line does not join up with the Cape to Cairo route, and so on.

Part 1 deals with Man's Relation to Physical Environment under the title of Human Geography. In it are recorded in tabular form the elements of Human Geography as conceived by the authors. The statement is too elaborate for quotation here, but we may say shortly that three main headings are given: Physical Conditions; Life; Human Responses. The latter are divided into—(*a*) Material Needs; (*b*) Occupations; (*c*) Efficiency (including Health and Energy and Recreation); (*d*) Higher Needs.

At the end of each chapter is a list of questions, problems, and exercises which "vary in difficulty and in subject-matter . . . they are adapted to students of different grades of ability and of different interests." We quote from page 307:—

"6. Read the first chapter of Rudyard Kipling's *Kim*, making a list of all the references to food, clothes, domestic animals, occupations, habits, and houses. Discuss the extent to which these show a direct response to the conditions imposed by physical geography."

And another from page 22:—

"4. Compare the geographic environment of Joseph and his brethren in Egypt with that of their Jewish descendants of the East Side of New York. Point out how this would cause differences in respect to the human responses included under (*a*) material needs, (*b*) occupations, in Fig. 1."

We may add that the student is consistently instructed to substitute his own locality where possible for that given in the question, so, substituting Shoreditch for the East Side of New York, the British student would be provided with a most interesting exercise.

In conclusion, we are certain that not only the student but any one who is not too old to be interested in human problems will find in this book an inexhaustible mine. The necessary information is imparted in a delightful way (see, for example, the paragraphs and diagrams on latitude and longitude, pp. 23-25), but, what is much more important, the aim of the authors is to suggest new lines of thought, and to point out some of the ways in which these lines may be followed.

---

## BOOKS RECEIVED.

*Hints to Travellers.* 2 Vols. Tenth Edition. By E. A. Reeves, F.R.A.S., F.R.G.S. London: Royal Geographical Society, 1921. *Price* 21*s. net.*

*Greek Ideals: A Study of Social Life.* By C. Delisle Burns. 2nd Edition. 8vo. Pp. x+310. London: G. Bell and Sons, Ltd., 1919.

*An Elementary Palaung Grammar.* By Mrs. Leslie Milne, F.R.A.I., M.R.A.S., with an Introduction by C. O. Blagden, M.A. 8vo. Pp. 187. Oxford: Clarendon Press, 1921. *Price* 8*s.* 6*d. net.*

*The Cotton Industry in France. A Report to the Electors of the Gartside Scholarships.* By R. B. Forrester, M.A., M.Com. 8vo. Pp. x+142. Manchester: University Press, 1921. *Price* 10*s.* 6*d.*

*A Regional Geography of the World.* By Leonard Brooks, M.A., F.R.G.S. 8vo. Pp. x+560. London: University of London Press, Ltd., 1921. *Price* 7*s.* 6*d.*

*Twenty-five Years in East Africa.* By John Roscoe, M.A. 8vo. Pp. xiii+288. Cambridge: University Press, 1921. *Price* 25*s.*

*Wanderings of a Naturalist.* By Seton Gordon, F.Z.S. With 78 Illustrations. 8vo. Pp. 219. London: Cassell and Co., Ltd., 1921. *Price* 15*s.*

*Among the Hill-Folk of Algeria: Journeys among the Shawia of the Aurès Mountains.* By M. W. Hilton-Simpson, B.Sc., F.R.G.S., F.G.S., F.R.A.I.

With a Map and Illustrations. 8vo. Pp. 248. London: T. Fisher Unwin, Ltd., 1921. *Price* 21*s.*

*The Rift Valleys and Geology of East Africa.* By J. W. Gregory, D.Sc., F.R.S. With many Maps and Illustrations. 8vo. Pp. 479. London: Seeley, Service and Co., Ltd., 1921. *Price* 32*s. net.*

*Kashmir in Sunlight and Shade.* By C. E. Tynedale Biscoe, M.A. With an Introduction by Major-Gen. L. C. Dunsterville, C.B., C.S.I. With 28 Illustrations and a Map. 8vo. Pp. 315. London: Seeley, Service and Co., Ltd., 1921. *Price* 12*s.* 6*d net.*

*Battlefields of the World War—Western and Southern Fronts. A Study in Military Geography.* By Douglas Wilson Johnson. Crown 8vo. Pp. xxvi + 648. New York: Oxford University Press, 1921.

*Essays on the Latin Orient.* By William Miller, M.A. (Oxon). 8vo. Pp. viii + 582. *Price* 40*s.* Cambridge: University Press, 1921.

*The Republic of Finland: An Economic and Financial Survey.* Edited by the Central Statistical Bureau. Helsingfors, 1921. Demy 4to. Pp. 76.

*Things seen in Florence.* By E. Grierson. Crown 8vo. Pp. 160. London: Seeley, Service and Co., Ltd., 1921. *Price* 3*s.* 6*d.*

*Die Oberflächenformen des Festlandes.* Von Alfred Hettner. Demy 8vo. Pp. 250. Leipzig: B. G. Teubner, 1921. *Price* 11*s.*

*Mogreb-el-Acksa—A Journey in Morocco.* By R. B. Cunninghame Graham. 8vo. Pp. 9 + 300. London: Duckworth and Co., 1921. *Price* 18*s.*

*Germany.* By S. Baring-Gould, M.A., with the collaboration of Arthur Gilman, M.A., revised and enlarged by Joseph M'Cabe. 8vo. Pp. xxiv + 455. London: T. Fisher Unwin, Ltd., 1921. *Price* 12*s.* 6*d. net.*

*Prehistory: A Study of Early Cultures in Europe and the Mediterranean Basin.* By M. C. Burkitt, M.A., F.G.S., with a short Preface by L'Abbé H. Breuil. Royal 8vo. Pp. xix + 438. Cambridge: University Press, 1921. *Price* 35*s.*

*Handbook and Guide to the "Misty Isle" of Skye.* By Kenneth Macrae. 8vo. Pp. 114. Portree: D. Macintyre, 1921. *Price* 2*s.* 6*d.*

*My South African Year.* By Charles Dawbarn. With 30 Illustrations from photographs. 8vo. Pp. xi + 252. London: Mills and Boon, Ltd., 1921. *Price* 10*s.* 6*d.*

*Essays in Historical Geography and on Kindred Subjects.* By James R. M'Clymont. 8vo. Pp. 51. London: Bernard Quaritch, Ltd., 1921. *Price* 10*s.* 6*d.*

*The Economic Development of France and Germany,* 1815-1914. By J. H. Clapham, Litt.D. 8vo. Pp. xi + 420. Cambridge: University Press, 1921. *Price* 18*s.*

*North England: An Economic Geography.* By L. Rodwell Jones, B.Sc. Illustrated. 8vo. Pp. viii + 256. London: George Routledge and Sons, Ltd., 1921. *Price* 6*s.*

*The Statesman's Year-Book for* 1921. Edited by Sir John Scott Keltie, LL.D., and M. Epstein, M.A., Ph.D. Pp. xliv + 1544. London: Macmillan and Co., Ltd., 1921. *Price* 20*s. net.*

*A Hundred Years in the Highlands.* By Osgood Hanbury Mackenzie of Inverewe. With Illustrations. 8vo. Pp. xiii + 272. London: Edward Arnold, 1921. *Price* 16*s. net.*

*Wanderings in the Western Highlands and Islands. Recounting Highland and Clan History, Traditions, Ecclesiology, Archaeology, Romance, Literature, Humour, Folk-Lore, etc.* By M. E. M. Donaldson. Illustrated. 8vo. Pp. 511. Paisley: Alexander Gardner, 1921. *Price* 30*s. net.*

*Grammar of Colloquial Tibetan.* By C. A. Bell, C.M.G., C.I.E. 8vo. Pp. x + 224. Calcutta, 1919. *Price Rs.* 3.

*English-Tibetan Colloquial Dictionary.* By C. A. Bell, C.M.G., C.I.E. 8vo. Pp. xxxvi + 562. Calcutta: Secretariat Book Depot, 1920. *Price Rs.* 4.

*The Norse Discorerers of America: The Wineland Sagas translated and discussed.* By G. M. Gathorne-Hardy, F.R.G.S. 8vo. Pp. 304. Oxford: Clarendon Press, 1921. *Price* 14*s.*

*Travels of a Consular Officer in North-West China.* By Eric Teichman, C.I.E., B.A. (Cantab.). With original maps of Shensi and Kansu. 8vo. Pp. xiii + 219. Cambridge: University Press, 1921.

*Germany as it is To-day.* By Alan Lethbridge. 8vo. Pp. xxxiii + 319. London: Eveleigh Nash Co., 1921. *Price* 8*s.* 6*d.*

*The Teaching of Geography. Emphasising the Project or Active Method.* By Mendel E. Branom and Fred. K. Branom. 8vo. Pp. viii + 292. London: Ginn and Co., 1921.

*A Practical Geography of Dumfriesshire.* By John Murray, M.A. With maps and diagrams. 8vo. Pp. 58. Dumfries: Dinwiddie, 1921.

*Frontière Septentrionale des Yugoslaves.* Par Jovan Cvijić. Pp. 50. Paris, 1919.

*Review of the Australian Administration in Papua from* 1907-1920. By J. H. P. Murray, Lieutenant-Governor. Pp. 48. Port Moresby, 1921.

*Statistics of Languages of the Provinces under the Polish "Civil Administration of the Eastern Lands"* December 1919. By Dr. E. Romer. Pp. 50. Warsaw, 1921.

*The Economic-Geographical Foundations of the Upper Silesian Question.* By Professor Dr. W. Volz. Pp. 91. Berlin: G. Stilke, 1921.

*Das Klima Thrakiens als Grundlage der Wirtschaft.* Von Dr. Erich Obst. Pp. 61. Berlin: B. G. Teubner, 1921. *Price* 5*s.*

*Coal-mining in Spitsbergen. A Paper read before the Mining Institute of Scotland.* By H. M. Cadell, F.R.S.E. London, 1920.

*New Oil Fields of Northern Canada.* By F. H. Kitto. Pp. 8. Ottawa: Department of the Interior, 1921.

*Botanical Survey of Natal and Zululand.* By R. D. Aitken, B.Sc., and G. W. Gale, B.Sc. Pp. 19. Pretoria: Agricultural Department, 1921.

*Three Travellers in North Africa.* By the Hon. Emily Ward. With Photographs and a Chapter on Southern Tunisia, by Lord Leigh, and a Preface by the Hon. Agnes Leigh. Demy 8vo. Pp. xii + 220. London: John Lane. *Price* 6*s.*

*The Heart of Nature, or the Quest for Natural Beauty.* By Sir Francis Younghusband, K.C.G., S.I., K.C.I.E., President of the Royal Geographical Society. Demy 8vo. Pp. xxvii + 235. London: John Murray. *Price* 12*s. net.*

*By Loch and Stream.* By R. C. Bridgett, M.A., B.Sc. Demy 8vo. Pp. x + 300. London: Herbert Jenkins, 1921. *Price* 10*s.* 6*d. net.*

*The New World: Problems in Political Geography.* By Isaiah Bowman, Ph.D., Director of the American Geographical Society of New York. Illustrated with 215 Maps and 65 Engravings from Photographs. Demy 8vo. Pp. viii + 632. New York: World Book Company, 1921. *Price* $3.75.

*Fiji: Its Problems and Resources.* By Major W. A. Chapple, M.D. 8vo. Pp. 189. London: Whitcombe and Tombs, Ltd., 1921. *Price* 9*s.*

*Map Projections.* By Arthur R. Hinks, C.B.E., M.A., F.R.S., Secretary of the Royal Geographical Society. Second Edition, Revised and Enlarged. 8vo. Pp. xii + 158. Cambridge: University Press, 1921. *Price* 12*s.* 6*d.*

*Papua: Annual Report for the Year* 1919-20.

*Colonial Reports (Annual).*—East Africa Protectorate, 1918-19 (1073); Barbadoes (1072); Leeward Islands (1074); Falkland Islands (1076).

*Agricultural Statistics*, 1919. Vol. VIII., Parts II. and III. 1921.

*Acreage and Live Stock Returns of Scotland.* Vol. IX., Parts I. and II. 1920.

*Report on the Administration of Bengal during* 1918-19. Calcutta, 1921.

*Survey of India: General Report*, 1919-20. Calcutta, 1921.

*Statistical Abstract relating to British India from* 1909-10 *to* 1918-19. London, 1921.

*Report of the Progress of the Ordnance Survey to* 31*st March* 1921. Southampton, 1921.

*Carte du Monde au Millionième. Rapport pour* 1921. Southampton: Ordnance Survey Office, 1921.

*Description of Arthur's Seat Volcano.* By B. N. PEACH, LL.D., F.R.S. (Memoirs of the Geological Survey of Scotland.) Edinburgh, 1921.

*The Economic Geology of the Central Coalfield of Scotland. Area IX. Carluke, Strathaven, and Larkhall.* By L. W. HINXMAN, B.A., F.R.S.E., R. G. CARRUTHERS, etc. (Memoirs of the Geological Survey of Scotland.) Edinburgh, 1921.

*Annual Statement of the Trade of the United Kingdom*, 1920. Vol. I. London, 1921. *Price* 3*s.*

*Moral and Material Progress and Condition of India*, 1920. London, 1921. *Price* 2*s.* 6*d.*

*Colonial Reports (Annual).*—No. 1079, Uganda; No. 1080, Fiji; No. 1081, Gibraltar. London, 1921.

*Northern Territory of Australia. Annual Report*, 1920. Victoria, 1921.

*Publishers forwarding books for review will greatly oblige by marking the* **price** *in clear figures, especially in the case of foreign books.*

---

## NEW MAPS AND ATLASES.

### EUROPE.

**ORDNANCE SURVEY OF SCOTLAND.**—The following publications were issued from 1st April to 30th June 1921:—

One-inch Maps. Printed in colours. Price unmounted 2s. each. Tourist Maps: Burns' Country. Lower Strath Spey.

Six-inch and Larger Scale Maps. Six-inch Maps (revised). Full sheets with contours in red. Price 4s. each. *Lanarkshire.*—Sheet **9.** *Linlithgowshire.*—Sheet **10.** *Stirlingshire.*—Sheet **37.** Quarter-sheets with contours in red. Price 1s. 6d. each. *Fifeshire.*—1 SW.; 2 SW.; 3 SE.; 6 NW.; 9 SW., 22 (SE. and 30 NE.); 23 SW.; 28 NE.; 29 NW.; 31 NE.; 32 SW.; 37 SW., SE.; 40 SW. *Kinross-shire.*—10 SE.; 11 SW.; 24 SE. Without contours—*Fifeshire.*—16 NE.; 43 NE.

1 : 2500 Scale Maps (revised), with houses stippled and with areas. Price 5s. each. **Roxburghshire.*—Sheets **N 1**—8, 12, 15, 16; **N 2**—6, 9, 10, 13, 14, 15; **N 3**—4, 7, 8, 11; **N 4**—1, 2, 3, 10, 13, 14, 15; **N 5**—(8 and 4), 10, 11, 12, 14, 15, 16; **N 6**—1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16; **N 7**—9, 13; **N 8**—2, 3, 5, 6, 7, 8, 9, 13, 15; **N 9**—3, 4 (6 and 2); **N 10**—1, 2, 3, 4; **N 11**—1, 9; **N 12**—

---

* Revised on new meridian, the plan numerals therefore differ from those of the previous Revision.

2, 6, 9 and 12a—12), 10, 13, 14; **N** 13—12; **N** 17—8, 11, 12, 14, 15, 16. Price 3s. each. **Roxburghshire.*—Sheets **N** 2—5 and 2), 7, 11; **N** 5—6, 13 and 9; **N** 6—9; **N** 7—14.

Town Maps. Special enlargements from 1 : 2500 to 1 : 1250 Scale. Price 6s. each. *Fifeshire.*—Sheets **34**—4 SE.; 8 NE., SE.; **35**—1 SW.; 5 NW., SW.

**GEOLOGICAL SURVEY OF SCOTLAND.**—The following publications were issued from 1st April to 30th June 1921 :—

Six-inch Maps. With geological lines. Price uncoloured 2s. 3d. each. *Lanarkshire*—9 SE.; 20 SW., S.E.

**ADMIRALTY CHARTS.**

**Scotland, East Coast.**—Plans in the Firth of Forth, July 1921. No. 3724. Price 3s.

„ „ „ River Tay, August 1921. No. 1481. Price 3s.

**Scotland, West Coast.**—River Clyde, Sept. 1921. No. 2007. Price 3s.

**The North Sea.**—Central Sheet, July 1921. No. 2182*b*. Price 5s.

**Signs and Abbreviations** on the more recent Charts, July 1921. No. D11. Price 2s. *Admiralty, London.*

**E. ROMER. GEOGRAFICZNO-STATYSTYCZNY ATLAS POLSKI.** New Edition, 1921. *Lwów and Warsaw.*

## AFRICA.

**BARTHOLOMEW'S GENERAL MAP OF AFRICA.** Scale 1 : 12,000,000. New Edition, 1921. Price 2s. 6d. paper; 5s. cloth.
*John Bartholomew and Son, Ltd., Edinburgh.*

**BARTHOLOMEW'S CENTRAL AND SOUTH AFRICA.**—Scale 1 : 5,000,000. New Edition, 1921. Price 2s. 6d. paper; 5s. cloth.
*John Bartholomew and Son, Ltd., Edinburgh.*

New editions of these two popular touring maps, incorporating all the most recent boundary adjustments.

## AMERICA.

**DOMINION OF CANADA** showing Railways.—Scale 1 : 6,336,000. 1921.
*Department of the Interior, Canada.*

**SASKATCHEWAN** showing Disposition of Lands. 17th Edition, 1921. Scale 1 : 792,000. *Department of the Interior, Canada.*

**GEOLOGIC ATLAS OF THE UNITED STATES.**—Folio 211. Elkton-Wilmington, 1920.
„ 212. Syracuse-Sakin, 1920.
25 cents each. *United States Geological Survey, Washington.*

**UNITED STATES SURVEY.**—Topographic Sheets on various scales. The figures after the name of each State indicates the number of sheets received.
Scale 1 : 125,000. California, 1.
Scale 1 : 62,500. California, 4; Georgia, 6; Missouri, 1; New Mexico, 1; New York, 1; Oregon, 1; S. Carolina, 3; Virginia, 4; Wisconsin, 1.
Scale 1 : 31,680. Texas, 9.
*United States Geological Survey, Washington.*

**BARTHOLOMEW'S GENERAL MAP OF SOUTH AMERICA.**—Scale 1 : 10,000,000. New Edition, 1921. Price 2s. 6d. paper; 5s. cloth.
*John Bartholomew and Son, Ltd., Edinburgh.*

## AUSTRALASIA.

**THE PACIFIC OCEAN** on Mollweide's Equal-Area Projection. 30 inches by 22½ inches. Price 4s. *Edward Stanford, Ltd., London.*

**BARTHOLOMEW'S REDUCED SURVEY MAP OF NEW ZEALAND.**—Coloured to show height of land. Scale 1 : 2,000,000. New Edition, 1921. Price 1s. 6d. paper; 3s. cloth. *John Bartholomew and Son, Ltd., Edinburgh.*

## NEW ATLASES.

**THE "TIMES" SURVEY ATLAS OF THE WORLD.**—A comprehensive series of maps reduced from the National Surveys of the World and the special surveys of travellers and explorers, with General Index of over two hundred thousand names. Prepared at the Edinburgh Geographical Institute under the direction of J. G. Bartholomew, LL.D., F.R.S.E., F.R.G.S., Cartographer to the King. Parts I. to XXXV. of this atlas have now been issued.
*Office of "The Times," London.*

**SAINT-MARTIN AND SCHRADER. ATLAS UNIVERSEL DE GÉOGRAPHIE.**—New Edition in parts, 1921.
Part 3, including map of Scotland. *Librairie Hachette, Paris.*

**NELSON'S SCHOOL ATLAS.**—Regional, Political, and Industrial. 64 maps with Index. Price 2s. 6d. *Thomas Nelson and Sons, Ltd., Edinburgh.*

**E. ROMER. ATLAS SCIENNY.**—I. Połkula Wechodnia, in 4 sheets.
II. Połkula Zachodnia, in 4 sheets.
IV. Europa, 1 : 3,500,000, in 4 sheets.
*Lwów and Warsaw.*

Three school wall maps, in Polish, coloured to show height of land and depth of sea. On the map of Europe railways are marked and towns are indicated according to population.

**E. ROMER. ATLAS GEOGRAFICZNY.** 1921. *Lwów and Warsaw.*
A new edition of a small school atlas.

**WORLD ATLAS OF COMMERCIAL GEOLOGY.**—Part I. Distribution of Mineral Production. Published 1921.
*Department of the Interior, Washington.*

As explained in the Introduction to this Atlas, its purpose is "to set forth graphically and to describe concisely the basic facts concerning both the present and the future sources of the useful minerals." The 72 maps which comprise the atlas are arranged in groups, and each group has maps of three kinds—the world map which is based on 1913 data; maps of the continents, also on 1913 data; and a map of the United States based on 1918 figures. It is quite obvious that the production of such an atlas must have entailed a tremendous amount of work, and the Director of the U.S. Geological Survey acknowledges the assistance he has received from some thirty geologists and others. They may well feel satisfaction in the finished work, and teachers especially, we think, will thank them for their labours. We have tested the maps on several occasions and found them accurate. If exception can be taken to the work at all it is that only one year—1913—has been taken, and that as the markings are on a percentage basis we can only compare one place with another producing the same commodity. On Plate 13, Europe, showing Petroleum, Oil Shale, and Natural Gas, for instance, at first glance one finds a great mass of blue colour in Scotland and only a few green dots round Baku. This only means, however, that Scotland produced over 90 per cent. of the world's output of Oil Shale, while Baku produced 17 per cent. of the world's Petroleum.

# INDEX: VOL. XXXVII.

*In the following Index the* ALPHABETICAL ORDER *is adhered to throughout. Titles of Papers are in deeper type. Contraction,* rev. = *Review in the Magazine.*


ADAMS, M., A Little Book on Map Projection, 216.
Admiralty Charts, New Issues, 217, 291.
—— Index Chart of Sailing Directions, 147.
Ægean Islands, Handbook to, *Apr. Supp.*, 2.
Africa, General Map (Bartholomew), 291.
— Schoolroom Map (Philip), 146.
Central, Map of (Bartholomew), 219, 291.
—— **Central, The Backbone of Africa (Wallis), *rev.*, 171.**
East, Annual Report, 290.
—— —— The Rift Valleys and Geology of (Gregory), 288.
—— —— —— Twenty-five Years in (Roscoe), 287.
— Year-Book (Brown), 214, *rev.*, 280.
**British East, Nairobi and Kenya Colony. By A Resident, 99.**
German East, Handbook to, *Apr. Supp.*, 3.
— Portuguese East, Handbook to, *Apr. Supp.*, 3.
— North, Three Travellers in (Ward), 289.
— South, Map of (Bartholomew), 219, 291.
—— —— My South African Year (Dawbarn), 288.
—— —— Official Year-Book, 214.
—— —— Travels in, *Apr. Supp.*, 3.
—— —— Year-Book, *Apr. Supp.*, 3; *rev.*, 280.
—— —— —— —— (Brown), 214; *rev.*, 280.
Agra, Tombs, Tents, and Gardens (Bastavala), 214; *rev.*, 278.
Agricultural Meteorology (Smith), 215.
— Statistics, *Apr. Supp.*, 4; 290.
Aitken, R. D., Botanical Survey of Natal, 289.
Albania, Handbook of, *Apr. Supp.*, 2.
Algeria, Among the Hill-Folk (Hilton-Simpson), 287.
—— Physical Features, Development and Resources, 269.
Allen, W. R., Expedition to Eastern Peru, 270.
Allenby's Final Triumph (Massey), *rev.*, 201.
America, Norse Discoverers of (Gathorne Hardy), 288.
— South, General Map (Bartholomew), 291.
—— —— Handbook, 1921 (Koebel), *Apr. Supp.*, 3.
— The New Latin-American Times, 126.
Andree, Karl, Geographie des Welthandels, 215.
Angola, J. de Rohan-Chabot's Expedition, 125.
Animal Life in Scotland, Influence of Man on (Ritchie), *rev.*, 128.
Antarctic, Lands of Silence (Markham), 215; *rev.*, 207.
Arabia, Handbook of, *Apr. Supp.*, 2.
Arctic, K. Rasmussen's New Expedition, 191.
—— Lands of Silence (Markham), 215; *rev.*, 207.
Argentine, La République (Denis), *rev.*, 281.
Armenia, Handbook of, *Apr. Supp.*, 2.
Arnot, F. S., Life and Explorations of (Baker), *rev.*, 204.
Arthur's Seat Volcano, Description of (Peach), 290.
Arts of the World (Balch), *Apr. Supp.*, 4.
Ashanti, Report, 215.
Askenazy, Prof. S., Dantzig and Poland, 213; *rev.*, 274.
Astronomy, Theoretical and Descriptive (White), 215.
Atlases, Bacon's Physical, 220.
—— Geograficzny (Romer), 292.
— Handy Royal (Johnston), *rev.*, 220.
— New, *Daily Telegraph* Victory, 148.
—— —— Johnston's "O.B.E." Atlas, 148.
— Philip's Comparative Geography, *rev.*, 148.
—— —— Handy Volume, 148.
—— —— Modern School, *rev.*, 148
—— —— Senior School, *rev.*, 148.

Atlases, New, Stieler's, *rev.*, 147.
—— —— Student's Own Contour, 148.
—— —— *Times* Survey, 148.
—— Philip's School Atlas, 220.
—— School (Nelson), 292.
—— Scienny (Romer), 292.
—— U.S. Geologic, 291.
—— Universel de Géographie (Saint-Martin and Schrader), 292.
—— World Atlas of Commercial Geology, *rev.*, 292.
Atwood, W. W., on the New Meaning of Geography in American Education, 193.
Australia, Northern Territory, Annual Report, 290.
—— Western, Year-Book, 214.
—— Year-Book, 214.
Austria, Map (Philip), 219.

Bacon's Physical Atlas, 220.
—— School Wall Map of Europe, 209.
Bahamas Report, 215.
**Bailey, Major F. M., In Russian Turkestan under the Bolsheviks, 81.**
—— Major F. M., Presented with Livingstone Medal, 81.
Baker, E., Life and Explorations of F. S. Arnot, *rev.*, 204.
Baku and the Caspian, Col. A. C. Yate, Errata, 121.
Balch, E. S., Arts of the World, *Apr. Supp.*, 4.
Balkans, Essays on the Latin Orient (Miller), 288.
—— The Geographical Factor in Balkan Questions (Newbigin), *Apr. Supp.*, 2.
Barbadoes, Annual Report, 290.
Baring-Gould, S., Germany, 288.
Barker, A. F., Through the Textile Districts of Canada and the United States, *rev.*, 279.
Bartholomew's Central and South Africa, 291.
—— General Map of Africa, 291.
—— Map of New Zealand, 292.
—— —— of South America, 291.
—— Plan of Edinburgh, 218.
Basden, G. T., Among the Ibos of Nigeria, *rev.*, 137.
Bastavala, D. S., Tombs, Tents, and Gardens, 214; *rev.*, 278.
Basutoland, Annual Report, *Apr. Supp.*, 4.
Bechhofer, C. E., In Denikin's Russia, 213; *rev.*, 274.
Bechuanaland, Report, 215.
Beddard, F. E., Book of Whales, 215.
Belgium: From the Roman Invasion (Cammaerts), *Apr. Supp.*, 1; *rev.*, 198.
Bell, C. A., Grammar of Colloquial Tibetan, 288.
Biscoe, C. E. T., Kashmir in Sunlight and Shade, 288.
Black, Dr. W. G., *referred to*, 2.
Blaikie, Dr. W. B., on Roman North Britain, 187.
Bland, J. O. P., China, Japan, and Korea, 214.
Bligh, Captain, Second Voyage to South Sea (Lee), *Apr. Supp.*, 3; *rev.*, 207.
Bombay, Shells from the Lands of (Wacha), 214; *rev.*, 280.
Bonacina, L. C. W., Definition of Geography, 126.
Bonney, T. C., Ice-Work, 215.
Bouasse, H., Géographie Mathématique, *rev.*, 211.
Bourgeois, General, Awarded Patron's Medal R.G.S., 192.
Bowman, I., The New World: Problems in Political Geography, 289.
Branom, M. E., Teaching of Geography, 289.
Bridgett, R. C., By Loch and Stream, 289.
Brigham, A. P., Cape Cod and the Old Colony, *rev.*, 140.
**British Association, The Meeting of, 192, 247.**
Brock, A. J., on Regional Survey in Scandinavia, 188.
Brooks, L., Regional Geography of the World, 287.
Brotchie, T. C. F., *referred to*, 1.
Brown, A. S., Year-Book South and East Africa, 214; *rev.*, 280.
—— **John Arthur, Cartography of Glasgow, 67.**
—— **R. N. Rudmose, The Falkland Island Dependencies, 116.**
—— R. N. Rudmose, The Principles of Economic Geography, *Apr. Supp.*, 3; *rev.*, 184.
Bruce, Dr. W. S., Awarded David Livingstone Medal, 127.
**Bryce, Prof. T. H., People of Glasgow, 13.**
Bulgaria, Handbook of, *Apr. Supp.*, 2.
Burkitt, M. C., Prehistory, 288.
Burma, In Farthest (Ward), *Apr. Supp.*, 2; *rev.*, 277.
Burns, C. D., Greek Ideals, 287.
Butler, F. H., Fifty Years of Travel, *Apr. Supp.*, 4; *rev.*, 209.

Cadell, H. M., Coal-mining in Spitsbergen, 289.
Caicos Islands, Annual Report, *Apr. Supp.*, 4.
Cairo, General Map, *rev.*, 146.
Calkins, H. A., In Canada's Wonderful Northland, *Apr. Supp.*, 3; *rev.*, 206.
Cameron, Thomas, *referred to*, 1.
Cammaerts, E., Belgium from the Roman Invasion, *Apr. Supp.*, 1; *rev.*, 198.
Canada, American Indian (Wissler), *Apr. Supp.*, 3; *rev.*, 281.
—— Handbook (Heaton), 214.
—— My Canadian Memories (Macnaughton), *Apr. Supp.*, 3.

Canada, Northern, New Oil Fields (Kitto), 289.
—— Province of New Brunswick (Lynch), 214.
— Railway Map, 291.
**Resources of the Lower St. Lawrence Valley. By R. Peattie, 103, 178.**
—— Standard Topographic Map, 220.
—— Through the Textile Districts (Barker), *rev.*, 282.
—— Wonderful Northland (Curran and Calkins), *Apr. Supp.*, 3 ; *rev.*, 206.
Carpenter, A., Nature Notes for Ocean Voyagers, 215.
Cartagena and the Banks of the Linn (Cunninghame Graham), *Apr. Supp.*, 1 ; *rev.*, 206.
Cashmere : Three Weeks in a Houseboat (Petrocokino), *Apr. Supp.*, 2 ; *rev.*, 276.
Caucasus, In Denikin's Russia (Bechhofer), 213 ; *rev.*, 274.
Census Results, Preliminary Report, 267.
Ceylon, Annual Report, *Apr. Supp.*, 4.
Chamberlain, J. F., Geography : Physical, Economic, Regional, 216.
Chapple, W. A., Fiji : Its Problems and Resources, 289.
China (Bland), 214.
—— Earthquake, 190.
—— In Unknown (Pollard), *rev.*, 131.
—— North-West, Travels of a Consular Officer (Teichman), 289.
**Chisholm, G. G., The Drift of Economic Geography, *rev.*, 184.**
Chumley, J., Deposit-Samples, *Apr. Supp.*, 4.
Civics, Summer School, 192.
Clapham, J. H., Economic Development of France and Germany, 288.
Clementi, Mrs. C., Through British Guiana, *rev.*, 141.
Close, A., Map showing the Naval War in the North Sea, 218.
Coal Production in 1920, 271.
Colombia, Cartagena and the Banks of the Linn (Cunninghame Graham), *Apr. Supp.*, 1 ; *rev.*, 206.
Congo, Belgian, Manual, *Apr. Supp.*, 3.
Copenhagen University Geography Course (Steensby), *rev.*, 285.
Cornell, F. C., Glamour of Prospecting, *rev.*, 138.
**Cornish, Vaughan, London as an Imperial Capital, 164.**
Cotton Industry in France (Forrester), 287.
Couchoud, P.-L., Japanese Impressions, 214 ; *rev.*, 279.
Cundall, L. B., A Human Geography of the British Isles, *Apr. Supp.*, 3 ; *rev.*, 211.
Cunningham, J. C., Products of the Empire, *Apr. Supp.*, 4 ; *rev.*, 283.
Cunninghame Graham, R. B., Cartagena and the Banks of Linn, *Apr. Supp.*, 1 ; *rev.*, 206.
Curran, W. T., In Canada's Wonderful Northland, *Apr. Supp.*, 3 ; *rev.*, 206.
Cushing, S. W., Principles of Human Geography, *Apr. Supp.*, 4 ; *rev.*, 286.
Cvijic, J., Frontière Septentrionale des Yugoslaves, 289.
Cynn, H. H., The Re-Birth of Korea, *Apr. Supp.*, 2 ; *rev.*, 276.
Cyprus, Annual Report, *Apr. Supp.*, 4.
—— Handbook to, *Apr. Supp.*, 2.
Czaplicka, Miss M. A., Obit., 193.
Czecho-Slovakia, Map (Philip), 219.

*Daily Telegraph* Victory Atlas, 148.
Dale, Captain A. M., The Ila-Speaking Peoples, *Apr. Supp.*, 3 ; *rev.*, 138.
—— G. H. C., Map Reading, 216 ; *rev.*, 285.
Dantzig and Poland (Askenazy), 213 ; *rev.*, 274.
Davison, C., Manual of Seismology, 215.
Dawbarn, C., My South African Year, 288.
Delhi, Tombs, Tents, and Gardens (Bastavala), 214 ; *rev.*, 278.
Denis, P., La République Argentine, *rev.*, 281.
Dhruva, N. M., Gujarati Self-Taught, 215.
Donaldson, M. E. M., Wanderings in the Western Highlands and Islands, 288.
Driault, E., La Question d'Orient, 213.
Dumfriesshire, Geography of (Murray), 289.
Durham, Place-Names of (Mawer), *Apr. Supp.*, 1 ; *rev.*, 197.

East, Near, Question and Solution (Jastrow), *rev.*, 132.
**Economic Geography, The Drift of. By Geo. G. Chisholm, *rev.*, 184.**
Edinburgh, Conditions in Mediaeval (F. C. Mears), 187.
—— District, Pedestrian's Map (Bartholomew), 216.
—— Industrial (Stephenson), 213.
—— Plan of (Bartholomew), 218.
—— —— (Johnston), 218.
Educational Notes, 193, 272.
Egypt, Diary of a Yeomanry M.O. (Teichman), 215 ; *rev.*, 284.
— Nile and Jordan (Knight), *Apr. Supp.*, 2 ; *rev.*, 284.
—— Survey of, 219.
Elder, J. R., Spanish Influences in Scottish History, *Apr. Supp.*, 1 ; *rev.*, 128.
Elles, G. L., Study of Geological Maps, 216.
Empire, Products of the (Cunningham), *Apr. Supp.*, 4 ; *rev.*, 283.
Encyclopaedia, New Age (Nelson), *Apr. Supp.*, 4.
England, Bartholomew's Maps, 146, 218.
—— Provinces of (Fawcett), *rev.*, 129.
—— Rainfall, 1919, *Apr. Supp.*, 1.

England, Story of English Towns (Fletcher), *Apr. Supp.*, 1; *rev.*, 197.
Enriquez, C. M., The Pathan Borderland, 214.
**Erosion induced by Dredging, An Example of Lake. By E. M. Kindle, 254.**
Ethnology, Prehistory (Burkitt), 288.
Europe, Bartholomew's Political Map, 146.
—— Historical Atlas of Modern (Macmillan), 220.
—— Stanford's Map, 146.
—— Wall Map (Bacon), 219.
Everest, Mount, Expedition, 123.

Falconer, J. D., Geology of the Plateau Tin Fields, *rev.*, 205.
—— W., Geography of Strabo, 215.
**Falkland Dependencies, The, 116.**
—— Islands, Annual Report, 290.
Faris, J. T., Seeing the Far West, *rev.*, 141.
Fawcett, C. B., Provinces of England, *rev.*, 129.
—— H. A., Macedonia, *Apr. Supp.*, 1; *rev.*, 195.
Fiji, Annual Report, *Apr. Supp.*, 4.
—— Islands Far Away (King), *rev.*, 142.
—— Its Problems and Resources (Chapple), 289.
—— Report, 290.
Finch, J. K., Topographic Maps and Sketch-Mapping, *rev.*, 285.
Finland, An Economic Survey, 288.
**Fleming, Rachel M., Geographic Aspects of Tradition, 226.**
Fletcher, J. S., Story of English Towns, *Apr. Supp.*, 1; *rev.*, 197.
Florence, Things Seen (Grierson), 288.
Florida Wilds, In Lower (Simpson), *rev.*, 139.
Forbes, Mrs. Rosita, Journey to Kufra, 190.
Fordham, H. G., Maps: their History, 216.
Forrester, R. B., Cotton Industry in France, 287.
France, A Spring Walk in Provence (Marshall), *Apr. Supp.*, 1; *rev.*, 199.
—— Cotton Industry in (Forrester), 287.
—— Economic Development of (Clapham), 288.
—— Géologie de la (de Launay), 213.
—— The Way of Saint James (King), *Apr. Supp.*, 1; *rev.*, 200.
—— Walks in Rouen (Perkins), *Apr. Supp.*, 1; *rev.*, 274.
Franklin, T., "O.R.E." Atlas, 148.

Gaillard, G., Les Turcs et l'Europe, *rev.*, 274.
Gale, G. W., Botanical Survey of Natal, 289.
Galicia, Map of, 218.
Gallipoli, Diary of a Yeomanry M.O. (Teichman), 215; *rev.*, 284.
Gambia, Annual Report, *Apr. Supp.*, 4.
Gathorne-Hardy, G. M., Norse Discoverers of America, 288.
Geddes, A. E. M., Meteorology, 215; *rev.*, 212.
Geographical Readers — Cambridge, Book IV. (Bosworth), 216.
—— —— Elementary Studies in Geography and History (Mackinder), 216.
—— —— Progress to Geography (Wilson), *rev.*, 285.
Geographie Mathématique (Bouasse), *rev.*, 211.
Geography as a University Subject, 272.
—— Definition of, L.C.W. Bonacina, 126.
—— Economic, The Principles of (Brown), *Apr. Supp.*, 3; *rev.*, 184.
—— Historical, Essays in (M'Clymont), 288.
—— Human, Principles of (Huntingdon and Cushing), *Apr. Supp.*, 4; *rev.*, 286.
—— —— India (Roberts), *Apr. Supp.*, 3; *rev.*, 278.
—— in the United States, 193.
—— Physical, Economic, Regional (Chamberlain), 216.
—— Political, The New World: Problems in (Bowman), 289.
—— Teaching of (Branom), 289.
—— Text-Books, A Graded Course of Geography (Price), 216.
—— —— Advanced Practical Physical Geography (Lambert), *rev.*, 211.
—— —— A Human Geography of the British Isles (Cundall), *Apr. Supp.*, 3; *rev.*, 211.
—— —— A Sketch-Map Geography (Taylor), 216.
—— —— Europe of To-day (Unstead), 216.
—— —— First Lessons in Geography (Marsden and Smith), *rev.*, 211.
—— —— Geography: Physical, Economic, and Regional (Chamberlain), 216.
—— —— Groundwork of Modern Geography (Wilmore), 216.
—— —— North England (Jones), 288.
—— —— Regional Geography of the World (Brooks), 287.
Geological Map of the World (Milner), 220.
—— Maps, Study of (Elles), 216.
—— Survey of Scotland, New Publications, 217, 291.
Geology, Commercial, World Atlas of, *rev.*, 292.
Germany (Baring-Gould), 288.
—— as it is To-day (Lethbridge), 289.
—— Economic Development of (Clapham, 288.
Gibraltar, Annual Report, *Apr. Supp.*, 4.
—— Report, 290.
**Glasgow and its Geographical History. By Prof. J. W. Gregory, 2.**
**Bibliographical Note. By A. Stevens, 76.**

**Glasgow, Cartography of. By John Arthur Brown, 67.**
**Cathedral and Bishopric. By Dr. George Neilson, 21.**
**Geography at the University of. By Principal Sir Donald MacAlister, 53.**
**L'Envoi. By Sir H. J. Mackinder, 77.**
**Municipal History and Activities. By Sir John Lindsay, 26.**
**Overseas Relations. By A. Stevens, 56.**
**People of. Prof. T. H. Bryce, 13.**
**Rise of Trade and Industry. By William Power, 37.**
**The Port and its Development. By D. M. Macintyre, 42.**
Goff, A., Macedonia, *Apr. Supp.*, 1 ; *rev.*, 195.
Gold Coast, Map, 147, 219.
—— —— Report, 216.
Goldring, D., Nooks and Corners in Sussex and Hampshire, *rev.*, 129.
Gordon, Seton, Wanderings of a Naturalist, 287.
Gourlay, J. W., *referred to*, 2.
Graham, P. A., Highways and Byways in Northumbria, *Apr. Supp.*, 1.
—— R. B. Cunninghame, Mogreb-el-Acksa, 288.
Greece, Handbook of, *Apr. Supp.*, 2.
Greek Ideals (Barnes), 287.
Greenbie, S., Japan Real and Imaginary, *rev.*, 279.
**Gregory, Prof. J. W., Glasgow and its Geographical History, 2.**
J. W., Rift Valleys and Geology of East Africa, 288.
Grenada, Annual Report, *Apr. Supp.*, 4.
Grenfell, W. T., A Labrador Doctor, *Apr. Supp.*, 4.
Grierson, E., Things Seen in Florence, 288.
Grosse, A., Map of Southern Scotland, 149.
Guiana, British, Blue Book, *Apr. Supp.*, 3.
—— —— Report, 216.
—— —— Through (Clementi), *rev.*, 141.
Gujarati Self-Taught (Dhruva), 215.

HADFIELD, E., Among the Natives of the Loyalty Group, *rev.*, 142.
Hamilton, H. C., Geography of Strabo, 215.
Hampshire, Nooks and Corners (Goldring), *rev.*, 129.
Harrogate, Story of English Towns (Fletcher), *Apr. Supp.*, 1 ; *rev.*, 197.
Heaton's Annual (Canada), 214.
Hettner, A., Die Oberflächenformen des Feslandes, 288.
Hilton-Simpson, M. W., Among the Hill Folk of Algeria, 287.
Himalaya, A Naturalist in (Hingston), *Apr. Supp.*, 2 ; *rev.*, 200.
Hingston, R. W. G., A Naturalist in Himalaya, *Apr. Supp.*, 2 ; *rev.*, 200.
Hinks, A. R., Map Projections, 289.
Holson, B., West Riding of Yorkshire, 213.
Honduras, British, Report, 216.
Hong Kong, Report, 216.
Horne, Dr. J., Awarded Wollaston Medal, 127.
Hungary, Development and Resources (Leger), 288.
—— Map (Philip), 219.
Huntington, E., Principles of Human Geography, *Apr. Supp.*, 4 ; *rev.*, 286.

Ice Work, Present and Past (Bonney), 215.
India, A Naturalist in Himalaya (Hingston), *Apr. Supp.*, 2 ; *rev.* 200.
Historical Geography (Roberts), *Apr. Supp.*, 3 ; *rev.*, 278.
Moral and Material Progress Report, 290.
—— Statistical Abstract, 290.
—— Survey of, New Publications, 219
—— —— Report, 290.
Topee and Turban (Newell), *Apr. Supp.*, 2 ; *rev.*, 280.
Women of, Rothfield, *rev.*, 133.
International Map of the World, 219.
Iona (M'Neill), *rev.*, 130.
Ireland, Rainfall, 1919, *Apr. Supp.*, 4.
Iron Industry, Early Sussex (R. Jenkins), 270.
Italy, Carta D'Italia *rev.*, 146, 218.
Diary of a Yeomanry M.O. Technique), 215 ; *rev.*, 284.

JAMAICA, Report, 215.
Japan (Bland), 214.
—— A Diplomat in (Satow), *Apr. Supp.*, 2 ; *rev.*, 202.
Japanese Impressions (Couchoud), 214 ; *rev.*, 279.
Modern (M'Govern), *rev.*, 134.
—— Real and Imaginary (Greenbie), *rev.*, 279.
Jastrow, M., Near Eastern Question, *rev.*, 132.
Java, Volcanoes of (A. and V. Mackie), 121.
Jenkins, J. T., Text Book of Oceanography, 215.
—— R., Early Sussex Iron Industry, 270.
Jerusalem, Pilgrim in (Parry), *Apr. Supp.*, 2.
**Jezireh, A Hot-Weather Trip in the. By Major Campbell Munro, 149, 221.**
Joelson, F. S., In Tanganyika Territory, *rev.*, 136.
Johnson, D. W., Battlefields of the World War, 288.
Johnston, G. H., Handy Royal Atlas, *rev.*, 220.
Johnston's "O.R.E." Atlas, 148.
—— Plan of Edinburgh, 218

Jones, L. R., North England: An Economic Geography, 288.

Kashmir in Sunlight and Shade (Biscoe), 288.
Kenya Colony, Handbook to, *Apr. Supp.*, 3, 214.
—— —— **Nairobi and (British East Africa). By A Resident, 99.**
Kincardineshire, Cambridge County Geography (Kinnear), *Apr. Supp.*, 1; *rev.*, 196.
**Kindle, E. M., An Example of Lake Erosion induced by Dredging, 254.**
King, A. G., Islands Far Away, *rev.*, 142.
—— G. G., The Way of Saint James, *Apr. Supp.*, 1; *rev.*, 206.
Kinnear, G. H., Kincardineshire, Cambridge County Geography, *Apr. Supp.*, 1; *rev.*, 196.
Kitta, F. H., New Oil Fields in Northern Canada. 289.
Knaresborough, Story of English Towns (Fletcher), *Apr. Supp.*, 1; *rev.*, 197.
Knight, Rev. G. A., Nile and Jordan, *Apr. Supp.*, 2; *rev.*, 284.
Koebel, W. H., Anglo-South-American Handbook, 1921, *Apr. Supp.*, 3.
Korea (Bland), 214.
—— The Re-Birth of (Cynn), *Apr. Supp.*, 2; *rev.*, 276.
Kurdistan, Handbook of, *Apr. Supp.*, 2.

Labrador Doctor, A (Grenfell), *Apr. Supp.*, 4.
**Lake Erosion induced by Dredging, An Example of. By E. M. Kindle, 254.**
Lambert, E., Advanced Practical Physical Geography, *rev.*, 211.
Launay, L. de, Géologie de la France, 213.
Lee, I., Captain Bligh's Second Voyage to the South Sea, *Apr. Supp.*, 3; *rev.*, 207.
Leeward Islands, Annual Report, 290.
Leicestershire, Cambridge County Geography (Pingriff), *Apr. Supp.*, 1.
Lempfert, R. G. K., Meteorology, *Apr. Supp.*, 3; *rev.*, 211.
L'Estrange's Progressive Course of Comparative Geography, 148.
Lethbridge, A., Germany as it is To-Day, 289.
Levant, Handbook to, *Apr. Supp.*, 2.
Libya, Handbook of, *Apr. Supp.*, 3.
**Lindsay, Sir John, Municipal History and Activities, 26.**
Loczy, L., Development of Hungary, 268.
**London as an Imperial Capital. By Vaughan Cornish, 164.**
Loyalty Group, Among the Natives of the (Hadfield), *rev.*, 142.
Lucas, W., The "Leading" Mapping Book, 148.
Lynch, F. C. C., The Province of New Brunswick, 214.

**MacAlister, Principal Sir Donald, Geography at the University of Glasgow, 53.**
Macartney, Sir George, *referred to*, 81.
M'Clymont, J. R., Essays in Historical Geography, 288.
Macedonia. A Plea for the Primitive, *Apr. Supp.*, 1; *rev.*, 195.
M'Govern, W. M., Modern Japan, *rev.*, 134.
**Macintyre, D. M., The Port and its Development, 42.**
Mackenzie, O. H., Hundred Years in the Highlands, 288.
—— T. R., *referred to*, 1.
Mackie, A. and V., Visit to Garoet, Java, 121.
**Mackinder, Sir H. J., L'Envoi, 77.**
—— H. J., Elementary Studies in Geography and History. 216.
MacLeod, Lieut.-Col. M. N., Awarded Gill Memorial of R.G.S., 192.
Macmillan's Historical Atlas of Modern Europe, 220.
Macnaughton, S., My Canadian Memories. *Apr. Supp.*, 3.
M'Neill, F. M., Iona, *rev.*, 130.
Macrae, K., Misty Isle of Skye, 288.
Malta, Annual Report, *Apr. Supp.*, 4.
Mann, Ludovic, *referred to*, 4, 6.
Map, International, 219, 290.
—— Projection, A Little Book on (Adams), 216.
—— Projections (Hinks), 289.
—— —— Some Investigations in the theory of (Young), *Apr. Supp.*, 4; *rev.*, 285.
—— Reading (Dale), 216; *rev.*, 285.
Mapping Book, The "Leading" (Lucas), 148.
Maps, New, 145, 216.
—— Study of Geological (Elles), 216.
—— their History (Fordham), 216.
—— Topographic, and Sketch-Mapping (Finch), *rev.*, 285.
Marcovitch, L., Serbia and Europe, 1914, 20; *rev.*, 273.
Markham, Sir C. R., Lands of Silence, 215; *rev.*, 207.
Marsden, E., First Lessons in Geography, *rev.*, 211.
—— K., My Mission in Siberia, 214.
Marshall, A., A Spring Walk in Provence, *Apr. Supp.*, 2; *rev.*, 199.
Massey, W. T., Allenby's Final Triumph, *rev.*, 201.
Mauritius, Report, 215.
Maury, Commandant, Awarded Murchison Grant of R.G.S., 192.
Mawer, A., Place-Names of Northumberland and Durham, *Apr. Supp.*, 1; *rev.*, 197.
Maxwell, D., A Painter in Palestine, *rev.*, 220.
Mears, F. C., on Conditions in Mediaeval Edinburgh, 187.

**Mesopotamia, A Hot-Weather Trip in the Jezireh. By Major Campbell Munro, 149, 221.**
—— Agricultural (Smith), 215.
—— British Rainfall, 1919, *Apr. Supp.*, 1.
—— Geology of, *Apr. Supp.*, 2; *rev.*, 276.
—— Handbook to, *Apr. Supp.*, 2.
—— (Lempfert), *Apr. Supp.*, 3; *rev.*, 211.
—— Marvellous (Parfit), *rev.*, 132.
Meteorology (Geddes), 215; *rev.*, 212.
Miller, W., Essays on the Latin Orient, 288.
Milne, Mrs. L., Elementary Palaung Grammar, 287; *rev.*, 208.
Milner, H. B., Geological Map of the World, 220.
Montenegro, Handbook of, *Apr. Supp.*, 2.
Montesinos, F., Memorias Antiguas Historiales del Peru, 214.
Morocco, In (Wharton), *Apr. Supp.*, 2; *rev.*, 135.
—— Mogreb el-Aeksa (Graham), 288.
Morrow, F., Advanced Practical Physical Geography, *rev.*, 214.
Mountaineering Art (Raeburn), *rev.*, 143.
**Munro, Major Campbell, A Hot-Weather Trip in the Jezireh, 149, 221.**
Murray, John, Geography of Dumfriesshire, 289.

Nabokoff, C., Ordeal of a Diplomat, 215; *rev.*, 275.
**Nairobi and Kenya Colony (British East Africa). By A Resident, 99.**
Natal, Botanical Survey (Aitken and Gale), 289.
Nature, The Heart of (Younghusband), 289.
Nautical, Index Chart of Sailing Directions, 147.
—— —— Nauticus, *Apr. Supp.*, 4.
—— Pearson's Almanack, *Apr. Supp.*, 4.
Neihardt, J. G., The Splendid Wayfaring, *Apr. Supp.*, 3; *rev.*, 282.
**Neilson, Dr. George, Cathedral and Bishopric, 21.**
Nelson's School Atlas, 292.
Newbigin, M. I., Awarded Back Grant of R.G.S., 192.
—— The Geographical Factor in Balkan Questions, *Apr. Supp.*, 2.
New Brunswick, The Province of (Lynch) 214.
Newell, Lieut.-Col. H. A., Topee and Turban, *Apr. Supp.*, 2; *rev.*, 280.
New Guinea, Administration Report, 289.
—— Annual Report, 289.
—— South Wales, Year-Book, 214.
—— Zealand, Map of (Bartholomew) 292.
—— Year-Book, *Apr. Supp.*, 3.
Nigeria, Among the Ibos of (Basden), *rev.*, 137.
Nigeria, Geology of the Plateau Tin Fields (Falconer), *rev.*, 205.
—— Report, 215.
Nisbet, Thomas, *referred to*, 1.
Noel, Captain J. B. L., Awarded Cuthbert Peek Grant of R.G.S., 192.
Northumberland, Place Names of (Mawer), *Apr. Supp.*, 1; *rev.*, 197.
Northumbria, Highways and Byways in (Graham), *Apr. Supp.*, 1.
Norway, Handbook of, *Apr. Supp.*, 2.
Nyasaland, Annual Report, *Apr. Supp.*, 4.
—— Portuguese, Handbook of, *Apr. Supp.*, 3.

O'Beirne, J. J. R., Serbo-Croatian Self-Taught, *Apr. Supp.*, 3.
Obst, E., Das Klima Thrakiens, 289
Oceanography, Deposit-Samples (Chumley), *Apr. Supp.*, 4.
—— Text Book of (Jenkins), 215.
Ogilvie, P. M., International Waterways, *Apr. Supp.*, 4.
O'Neill, H. C., A History of the War, *Apr. Supp.*, 4.
Ordnance Survey, Progress Report, 216, 290.
—— —— of Scotland, New Publications, 145, 216, 290.
Osborne, S., The Upper Silesian Question and Germany's Coal Problem, *Apr. Supp.*, 1; *rev.*, 195.
Ozark Highlands, Geography of (Sauer), *rev.*, 205.
—— —— and Archaeology, 266.

Pacific, Captain Bligh's Second Voyage (Lee), *Apr. Supp.*, 3; *rev.*, 207.
—— Islanders of the (St. Johnston), *Apr. Supp.*, 3; rev., 283.
—— Islands Far Away (King), *rev.*, 142.
—— Ocean, Map (Stanford), 292.
Palaung Grammar, Elementary (Milne), 287, *rev.*, 208.
Palestine, A Painter in (Maxwell), 213; *rev.*, 201.
—— Allenby's Final Triumph (Massey), *rev.*, 201.
—— Diary of a Yeomanry M.O. (Teichman), 215; *rev.*, 284.
—— Handbook to, *Apr. Supp.*, 2.
—— Irrigation Projects on the Jordan Valley, 268.
—— Nile and Jordan (Knight), *Apr. Supp.*, 2; *rev.*, 284.
Papua, Administration Reports, 289.
—— Annual Report, 289.
Parry, Rev. O. H., The Pilgrim in Jerusalem, *Apr. Supp.*, 2.
Parfit, J. T., Marvellous Mesopotamia, *rev.*, 132.
Pathan Borderland, The (Enriquez), 214.
Peach, B., Arthur's Seat Volcano, 290.

Peach, B., Awarded Wollaston Medal, 127.
Pearson's Nautical Almanack, *Apr. Supp.*, 4.
**Peattie, Roderick, Resources of the Lower St. Lawrence Valley, 103, 178.**
Perkins, J., Walks in Rouen, *Apr. Supp.*, 1 ; *rev.*, 274.
Peru, Eastern, Dr. W. R. Allen's Expedition, 270.
—— Memorias Antiguas (Montesinos), 214.
Petrocokino, A., Cashmere, *Apr. Supp.*, 2 ; *rev.*, 276.
Philip's Atlas of Comparative Geography, *rev.*, 148.
—— Handy Volume Atlas of the World, 148.
Modern School Atlas, *rev.*, 148.
—— Progressive Course of Comparative Geography, 148.
—— School Atlas, 220.
—— Schoolroom Map of Africa, 146.
—— Senior School Atlas, *rev.*, 148.
Pingriff, G. W., Leicestershire, *Apr. Supp.*, 1.
Poland, Atlas (Romer), 291.
—— Dantzig and (Askenazy), 213 ; *rev.*, 274.
—— Map of, 218.
—— Mapa Polski (Romer), *rev.*, 146.
—— Statistics of Languages (Romer), 289.
Pollard, S., In Unknown China, *rev.*, 131.
Pontefract, Story of English Town (Fletcher), *Apr. Supp.*, 1 ; *rev.*, 197
**Power, William, Rise of Trade and Industry, 37.**
Price, E. S., A Graded Course of Geography, 216.
Products of the Empire (Cunningham), *Apr. Supp.*, 4 ; *rev.*, 283.
Prospecting, Glamour of (Cornell), *rev.*, 138.
Provence, A Spring Walk in (Marshall), *Apr. Supp.*, 1 ; *rev.*, 199.

Raeburn, H., Mountaineering Art, *rev.*, 143.
Rainfall, British, 1919, *Apr. Supp.*, 1.
Rasmussen, K., New Danish Arctic Expedition, 191.
Rayne, H., Sun, Sand, and Somals, 214.
Reeves, E. A., Hints to Travellers, 287.
Renwick, Dr. Robert, *referred to*, 1.
Rhodesia, Northern, The Ila-Speaking Peoples (Smith and Dale), *Apr. Supp.*, 3 ; *rev.*, 138.
Ritchie, J., Influence of Man on Animal Life in Scotland, *rev.*, 128.
on Regionalism in Natural History, 186.
Roberts, P. E., India, Historical Geography, *Apr. Supp.*, 3 ; *rev.*, 278.
Robertson, J., Scottish Abbeys and Cathedrals, *Apr. Supp.*, 1.
Rohan-Chabot, J. de, Expedition to Angola, 125.
Romer, E., Atlas Polski, 290.
—— Geograficzny, *rev.*, 292.
—— Scienny, 292.
—— Statistics of Languages, Poland, 289.
—— Mapa Polski, *rev.*, 146.
Roscoe, J., Twenty-five Years in East Africa, 287.
Rothfeld, O., Women of India, *rev.*, 133.
Rouen, Walks in (Perkins), *Apr. Supp.*, 1 ; *rev.*, 274.
Roumania, Handbook of, *Apr. Supp.*, 2.
Roy, J. A., Pole and Czech in Silesia, *Apr. Supp.*, 1. ; *rev.*, 130.
Russia, Arctic, Handbook, *Apr. Supp.*, 2.
—— In Denikin's (Bechhofer), 213 ; *rev.*, 274.
Present-day, Political and Economic Report, 189.

Saint-Martin, Atlas Universel de Géographie, 292.
St. Johnston, T. R., The Islanders of the Pacific, *Apr. Supp.*, 3 ; *rev.*, 283.
**St. Lawrence Valley, Resources of the Lower. By R. Peattie, 103, 178.**
St. Vincent, Report, 215.
Saskatchewan, Disposition of Lands, 291.
Satow, Sir E., A Diplomat in Japan, *Apr. Supp.*, 2 ; *rev.*, 202.
Sauer, C. O., Geography of the Ozark Highlands, *rev.*, 205.
Scandinavia, Regional Survey in, A. J. Brock, 188.
Schrader, Atlas Universel de Géographie, 292.
Scotland, Agricultural Statistics, 290.
—— Archæology and Prehistoric Annals of (Wilson), *Apr. Supp.*, 1.
Bartholomew's Maps, *rev.*, 146, 217, 218.
—— By Loch and Stream (Bridgett), 289.
—— Economic Geology of the Central Coalfield (Hinxman), 290.
—— Geological Survey, New Publications, 217, 291.
—— Hundred Years in the Highlands (Mackenzie), 288.
Influence of Man on Animal Life (Ritchie), *rev.*, 128.
—— Kincardineshire, Cambridge County Geography (Kinnear), *Apr. Supp.*, 1 ; *rev.*, 196.
—— Ordnance Survey, New Publications, 145, 216, 290.
Rainfall, 1919, *Apr. Supp.*, 1.
**Scottish Regional Association, Edinburgh Conference of, 184.**
Scottish Abbeys and Cathedrals (Robertson), *Apr. Supp.*, 1.
Southern, and Adjacent English Counties, Map (Gosse), 146.
Spanish Influences in Scottish

History (J. R. Elder), *Apr. Supp.*, 1 ; *rev.*, 128.
Scotland, Wanderings in the Western Highlands and Islands (Donaldson), 288.
Seismology, Manual of (Davison), 215.
Serbia, Handbook of, *Apr. Supp.*, 2.
—— and Europe 1914-20 (Marcovitch), *rev.*, 273.
Serbo-Croatian Self-Taught (O'Beirne), *Apr. Supp.*, 3.
Seychelles, Report, 215.
Sharpe, Sir A., The Backbone of Africa, *rev.*, 171.
Siberia, Handbook of, *Apr. Supp.*, 2.
—— My Mission in (Marsden), 214.
Sierra Leone, Report, 215.
Silesia, Economic-Geographical Foundations (Volz), 289.
—— Pole and Czech in (Roy), *Apr. Supp.*, 1 ; *rev.*, 130.
—— Upper Silesian Question and Germany's Coal Problem (Osborne), *Apr. Supp.*, 1 ; *rev.*, 195.
Simpson, C. T., In Lower Florida Wilds, *rev.*, 139.
Skye Handbook (Macrae), 288.
Smith, Rev. E. W., The Ila-Speaking Peoples, *Apr. Supp.*, 3 ; *rev.*, 138.
—— T. A., First Lessons in Geography, *rev.*, 211.
Solomon Islands, Report, 215.
Somaliland, British, Sun, Sand, and Somals (Rayne), 214.
South Georgia, Development, 116.
—— Shetlands, Development, 116.
Spain, A Picture of Modern (Trend), 213.
—— Way of Saint James (King), *Apr. Supp.*, 1 ; *rev.*, 200.
Spanish Influence in Scottish History (Elder), *Apr. Supp.*, 1 ; *rev.*, 128.
**Spink, E. M., Geographical Distribution of Commercial Timber in the Pacific States of North America, 257.**
Spitsbergen, Coal-mining in (Cadell), 289.
**1919 and 1920, Geographical Observations in. By G. W. Tyrrell, 226.**
Stanford's Map of Europe, 146.
—— —— of the Pacific Ocean, 292.
Statesman's Year-Book (Keltie), 288 ; *rev.*, 144.
Steensby, H. P., Inledning til det Geografiske Studium ved Kopenhagen, *rev.*, 285.
Stefansson, V., Awarded Founder's Medal, R.G.S., 192.
Stephenson, T., Industrial Edinburgh, 213.
**Stevens, A., Glasgow: Bibliographical Note, 76.**
**Overseas Relations, 56.**
Stieler's Hand Atlas, *rev.*, 147.
Strabo, Geography of (Hamilton and Falconer), 215.
Straits Settlements, Annual Report, *Apr. Supp.*, 4.
Sudan Almanac, *Apr. Supp.*, 3.
Sussex, Nooks and Corners (Goldring), *rev.*, 129.
Sweden, Handbook of, *Apr. Supp.*, 1.
—— Turistföreningens Arsskrift, 213.
Syria, Handbook to, *Apr. Supp.*, 2.

Tanganyika Territory, In (Jodson), *rev.*, 136.
Taylor, E. G. R., A Sketch-Map Geography, 216.
Teichman, E., Travels of a Consular Officer in North-West China, 288.
—— O., Diary of a Yeomanry M.O., 215 ; *rev.*, 284.
Tetley, W. C., Blanco y Colorada, 214.
Tibetan, Grammar of Colloquial (Bell), 289.
**Timber in the Pacific States of North America, Geographical Distribution of Commercial. By H. M. Spink, 257.**
*Times*, Survey Atlas, 148, 292.
Tobago, Report, 216.
Trade Report of the United Kingdom, *Apr. Supp.*, 4, 290
—— —— Statistical Abstract, 1905-1919, 213.
**Tradition, Geographic Aspects of. By Rachel M. Fleming, 226.**
Travel, Fifty Years of (Butler), *Apr. Supp.*, 4 ; *rev.*, 209.
—— Nature Notes for Ocean Voyagers (Carpenter), 215.
Travellers, Hints to (Reeves), 287.
Trend, J. B., A Picture of Modern Spain, 213.
Trinidad, Report, 216.
Turanians, A Manual on the, 213.
**Turkestan, Russian, In, under the Bolsheviks. By Major F. M. Bailey, 81.**
Turkey, Les Turcs et l'Europe (Gaillard), *rev.*, 274.
Turks Islands, Annual Report, *Apr. Supp.*, 4.
**Tyrrell, G. W., Geographical Observations in Spitsbergen, 1919-1920, 226.**

Uganda, Annual Report, *Apr. Supp.*, 4, 290.
—— Protectorate, Handbook, 214 ; *rev.*, 123.
United States, American Indian (Wissler), *Apr. Supp.*, 3 ; *rev.*, 281.
—— —— Cape Cod and the Old Colony (Brigham), *rev.*, 140.
—— —— **Geographical Distribution of Commercial Timber in the Pacific States. By E. M. Spink.**
—— —— Geography of the Ozark Highlands (Sauer), *rev.*, 205.
—— —— Geologic Atlas, 291.
—— —— Maryland Geological Survey, *Apr. Supp.*, 3.
—— —— Seeing the Far West (Faris), *rev.*, 141.

United States, Splendid Wayfaring (Neihardt), *Apr. Supp.*, 3 ; *rev.*, 282.
—— —— Survey, (New Sheets), 147, 291.
—— —— Through the Textile Districts (Barker), *rev.*, 282.
Unstead, J. F., Europe of To-Day, 216.
Uruguay, Blanco y Colorada (Tetley), 214.

Venezuela, Mapa Ecológica de, 220.
Volz, W., Economic-Geographical Foundations, Silesia, 289.

Wacha, D. E., Shells from the Lands of Bombay, 214 ; *rev.*, 280.
Wales, Bartholomew's Maps, 146, 218.
Wallis, H. R., Handbook to Uganda, 123.
—— —— **The Backbone of Africa**, *rev.*, 171.
War, The, A History (O'Neill), *Apr. Supp.*, 4.
—— —— Battlefields of the World War (Johnson), 288.
—— —— The Naval War in the North Sea (Close), 218.
Ward, Hon. E., Three Travellers in North Africa, 289.
—— F. Kingdom, In Farthest Burma, *Apr. Supp.*, 2 ; *rev.*, 277.
Waterways, International (Ogilvie), *Apr. Supp.*, 4.
Whales, Book of (Beddard), 215.
Wharton, E., In Morocco, *Apr. Supp.*, 2 ; *rev.*, 135.
Whitaker's Almanack, *Apr. Supp.*, 4.
White, C. J., Theoretical and Descriptive Astronomy, 215.
Wilmore, A., Groundwork of Modern Geography, 216.
Wilson, D., The Archæology and Prehistoric Annals of Scotland, *Apr. Supp.*, 1.
—— R., Progress to Geography, *rev.*, 285.
Wilson-Barker, D., Nature Notes for Ocean Voyagers, 215.
Wissler, C., The American Indian, *Apr. Supp.*, 3 ; *rev.*, 281.
Witte, Memoirs of, 215 ; *rev.*, 275.

Yate, Col. A. C., Baku and the Caspian, Errata, 121.
Year-Books, Australian, 214.
—— —— Canada, 214.
—— —— Pearson's Nautical Almanack, *Apr. Supp.*, 4.
—— —— Scientific and Learned Societies, *Apr. Supp.*, 4.
—— —— Statesman's, 288 ; *rev.*, 144.
—— —— Whitaker's Almanack, *Apr. Supp.*, 4.
—— —— Who's Who, *Apr. Supp.*, 4.
Yorkshire, West Riding of (Hobson), 213.
Young, A. E., Some Investigations in the theory of Map Projections, *Apr. Supp.*, 4 ; *rev.*, 285.
—— E. H., By Sea and Land, *rev.*, 143.
Younghusband, Sir F., Heart of Nature, 289.
Ypres Salient, Pilgrim's Guide, *rev.*, 200.
Yugoslaves, Frontière Septentrionale des (Cvijic), 289.

Zanzibar, Annual Report, *Apr. Supp.*, 4.
Zululand, Botanical Survey (Aitken and Gale), 289.

## ILLUSTRATIONS.

Europe.

| | PAGE |
|---|---|
| A view on the Molendinar, 1769 | 6 |
| A view of Glasgow from the South-East, 1782 | 22 |
| A view of Glasgow from the South-West, 1764 | 38 |
| Glasgow Bryg, 1680 | 62 |
| View of Glasgow from the West, 1758 | 68 |
| Glasgow Harbour, 1760 | 68 |
| Glasgow College, with Blackfriars' Church, in 1669 | 27 |
| View of the Trongate from the East, 1770 | 36 |

Asia.

| | |
|---|---|
| Kashgar from the City Wall | 82 |
| The City Wall of Kashgar | 83 |
| Caravan in the Alai Mountains | 84 |
| Kirghiz Yurts in defile on the west side of the Terek Dawan Pass | 85 |
| Street in Tashkent, showing untouched trees | 95 |
| Street in Tashkent, showing the cutting of the trees for fuel | 96 |
| The party crossing the desert | 97 |
| Well (750 feet deep) at Yur Chilik | 98 |
| The Crater of Mount Papandajan | 122 |
| Arabs of Escort | 155 |
| A Desert Water-pool | 223 |
| A Mid-day Halt | 224 |

America.

| | |
|---|---|
| The Falls of Montmorency | 104 |
| The Falls of Bas la Baie | 107 |
| One of the last clearings between the St. Lawrence and Ungava | 109 |
| Coastal Forest, Douglas Fir type, in dense stand | 260 |

PAGE

Heavy Forest, Yellow Pine type, Klamath National Forest, California . . . . 261

ARCTIC.

Mount Jessie (3389 feet), Prince Charles Foreland . . 230

PAGE

White Berg, Cowan Range . 232
The Lion's Head (right) and Mount Sphinx (middle) . 234
View eastward up the Ebba Valley 234
Nordenskjöld Glacier viewed from Cape Rudmose . . 235
The Russian Hut at Cape Lee, Edge Island . . . 237
Cape Blanck, Edge Island . . 241

## MAPS AND DIAGRAMS.

EUROPE.

PAGE

The River Clyde and Adjoining District, compiled from Blaeu's Atlas . . *Frontispiece*
Watt's The River of Clyde and the entry to the River and Firth of Clyde . . . . 28
M'Arthur's Reduced Plan of the City of Glasgow, Gorbells, and Caltoun . . . 40
Barry's Plan of the City of Glasgow, Gorbells, Caltoun and Environs . . . . 64
Fleming's Reduced Map of the City of Glasgow and Suburbs 72
Plan of City in 1650 . . . 80
Plan of part of the Burn Molendinar . . . . 8-9
Ross's Plan of Glasgow, 1773 . 70-71

ASIA.

Part of Jezireh, showing author's route . . . . 150

AMERICA.

PAGE

Map of the Lower St. Lawrence Valley . . . . 106
Plan of Cobourg Harbour . . 255
Plan of soundings taking at harbour entrance . . 256
Timber output of Lake States, Gulf States, and Pacific States in the period 1860-1920 . 263
Sketch-map of the United States, to show the extent to which the home market is supplied by timber from the Pacific States . . . . 265

ARCTIC.

Sketch-map of Prince Charles Foreland, central part . 227

END OF VOLUME XXXVII.

Edinburgh: Printed by T. and A. CONSTABLE LTD.

# ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.

## REPORT OF COUNCIL.

### THIRTY-SIXTH SESSION, 1919-1920

(*1st October* 1919 *to* 30*th September* 1920).

The Council have the honour to submit the following Report :—

#### ORDINARY MEMBERSHIP.

The changes which occurred during the Session in the number of members were as follows :—

| | | |
|---|---|---|
| Number on 1st October 1919, | | 1309 |
| New Members added, | | 127 |
| | | 1436 |
| Deduct by Death, | 32 | |
| „ Resignation, | 36 | |
| „ Arrears, | 8 | |
| | | 76 |
| Number of ordinary members remaining on the roll on 30th September 1920, | | 1360 |

Of this number, 684 are on the Edinburgh list, 354 on the Glasgow list, 117 and 87 on the Dundee and Aberdeen lists respectively. In addition to those on the lists named, 35 members reside abroad, and 83 reside in England. The number of Life members in the total given above is 193.

#### TEACHER ASSOCIATE MEMBERS.

| | | |
|---|---|---|
| Number on 1st October 1919, | | 190 |
| New Members added, | | 182 |
| | | 372 |
| Deduct by Death, | 2 | |
| „ Resignation, | 17 | |
| „ Arrears, | 4 | |
| | | 23 |
| Remaining on roll 30th September 1920, | | 349 |

The number of Associate Members at the various centres is as follows :— Edinburgh, 108 ; Glasgow, 170 ; Dundee, 2 ; Aberdeen, 21. In addition 44 reside in England and 4 abroad.

### Fellows and Honorary Members.

There are seven Honorary Members, thirty Honorary Fellows, and one hundred and six Ordinary Fellows of the Society, and thirty-seven Honorary Corresponding Members.

The Diploma of Fellowship was granted during the session to William H. Gastall, D.C.M., Liverpool; Alexander S. Lawson, M.A., Edinburgh; William P. C. Bain, Edinburgh; Charles Lawrence Baker, S.B., M.A., California; Horace J. Bower, Wakefield; Mohamed Hamdi, Cairo; Ebenezer King, Corstorphine; Harry J. Peddie, Edinburgh; J. P. Smith, J.P., Larbert; James Walker, M.A., Edinburgh; Hugh Fraser Campbell, M.A., B.L., Aberdeen; David Brigham; Edinburgh; George Tudhope, China; John W. Moir, Edinburgh; Norman M. Johnston, M.A., Kirkcaldy; M. S. Odabashian, Edinburgh; Ernest A. Manchester, Glasgow; Dr. Robert Fullarton, Glasgow.

### Society's Medals.

At the opening meeting of the session, held in the Usher Hall on December 3rd, the Right Hon. Field-Marshal Earl Haig of Bemersyde was presented with the Society's Gold Medal (p. 44).

The Society's Silver Medal was awarded to David E. Collier, first in the merit list in the ordinary class in Geography in Edinburgh University.

### The Library and Map Department.

During the past session 243 books, 78 pamphlets, 131 reports, 14 atlases, 247 map-sheets and charts have been added to the Library. The transactions and periodicals regularly received number 154. The number of volumes borrowed by members was 2213, and the library was, as usual, much consulted by others in search of geographical information.

The Council desire to record their thanks to the Foreign and Colonial Governments for the official publications they have presented to the Library; to the Treasury, for the revised Ordnance Survey maps of Scotland, both in outline and colour, as each of the revisions now in progress is published; to the Geological Survey of Scotland; to the Geographical Section, General Staff, War Office; to the Admiralty; to the British Museum (Natural History); to the Edinburgh University Library; to the Survey of India; and also to the under-mentioned private donors of books and maps, viz.:—Lady Warrack; Rt. Hon. Earl Haig of Bemersyde; Dr. Wm. S. Bruce; Mr. C. Boog-Watson; Mr. Walter S. Dickson; Miss E. M. Barclay; Mrs. M. H. Mackintosh; Mr. W. Forgan; Mr. G. T. Scott; and Mr. Ralph Richardson.

### Donations.

The Glasgow Corporation has generously made a grant of £200 from the funds of the Scottish Exhibition of Natural History, Art and Industry towards the cost of production of a special number of the Magazine, to be entirely devoted to the City of Glasgow.

The Scottish Spitsbergen Syndicate, Ltd., generously subscribed £25 towards the cost of production of the map of Klaas Billen Bay and Temple Bay, Spitsbergen, to illustrate Dr. Rudmose Brown's article, which appeared in the April issue.

### Bequest.

Under the will of the late Dr. Bartholomew the sum of £500 was bequeathed to the Society, subject to a life interest.

### Meetings of the Society.

The Society's Anniversary Meeting was addressed by Sir Arthur Steel-Maitland. Thirty-two ordinary meetings of the Society were held, twelve, including six afternoon meetings, in Edinburgh, seven in Glasgow, and six and seven in Dundee and Aberdeen respectively. These meetings were addressed by Dr. R. Rudmose Brown; Miss Ella Christie; Lt.-Col. J. H. M. Cornwall, C.B.E., D.S.O., M.C., R.A.; Captain D. G. Cooper, M.B.; Captain W. B. R. King; Prof. Lionel W. Lyde, M.A., F.R.G.S.; Mr. John Mathieson, F.R.S.G.S.; Miss G. E. Mitton; Sir Ernest Shackleton, C.V.O.; Mr. Ikbal Ali Shah, M.R.A.S., F.R.G.S.; Captain Basil Spence, R.A.M.C., and Mr. Wm. Barnes Steveni, M.J.I. In addition, a cinematograph exhibition of pictures, taken by Mr. Byron Harmon of Banff, Alberta, and a series of beautiful slides from photographs taken by Mr. David Brigham, and described by Mr. Harold Raeburn, were shown.

### The Scottish Geographical Magazine.

The chief event of the past year in connection with the *Magazine* has been the publication in October 1919 of the Edinburgh issue, with its long series of maps and illustrations. The success of this number has led to an effort being made to follow it by another devoted to the City of Glasgow. Since the beginning of 1920 the *Magazine*, owing to the steady rise in printing costs, has been reduced to a quarterly of 72 pages. It has, however, been supplemented by the publication, during the winter months, of a billet containing lists of books received, and notes on important articles appearing in the current geographical journals.

The Council desire to acknowledge their obligations to the contributors of articles, and to the following, who have rendered valuable assistance to the editors:—The late Dr. J. G. Bartholomew; Mr. J. H. Birrell; Principal O Charnock Bradley; Dr. R. N. Rudmose Brown; Mr. H. M. Cadell; Mr. W. L. Calderwood; Miss Constance De La Cour; Rev. J. R. Fleming; Mr. A. P. Gray; Dr. John Gunn; Mr. L. Hinxman; Mr. N. M. Johnson; Mr. W. R. Kermack; Dr. C. G. Knott; Mr. John Mathieson; Mr. J. D. Monro; Rev. Dr. Morrison; Dr. F. Mort; Mr. R. C. Mossman; Mr. T. S. Muir; Mr. C. T. Macgregor; Mr. Harold Raeburn; Mr. Ralph Richardson; Dr. W. G. Smith; Prof. J. A. Thomson; Mr. H. R. Wallis; and Mr. W. B. Wilson.

### Obituary.

#### Dr. J. G. Bartholomew.

The Council have to express their deep regret at the great loss which the Society has sustained through the death of Dr. J. G. Bartholomew. The Council have recorded their appreciation of the services rendered by him to the Society in the minute which appears on p. 182.

#### Lord Guthrie.

The Council have likewise to express their profound regret at the loss which the Society has sustained through the death of Lord Guthrie. The Council have

recorded in the minute printed on p. 182 their appreciation of the services rendered by him to the Society.

The Council also regret to have to record, among others, the deaths of the following members :—Dr. George Smith (see pp. 187-8) ; Dr. Robert Munro ; Sir Lewis M'Iver ; Colonel Sir Henry Trotter ; The Hon. Lord Peckover ; and Sir David Stewart of Banchory.

### National Collection of Old Maps of Scotland.

The Committee at work upon the National Collection of Old Maps of Scotland have not been able to add much to the number of maps this year, as very little has been offered, but working upon their fine collection of Maps of the Lothians, they were able during June to exhibit an almost complete collection of the maps of those counties from the very earliest. There was a constant stream of visitors. At the same time the opportunity was taken, through the kindness of Dr. W. B. Blaikie, to exhibit his unique collection of maps relating to the events of the year 1745. Four lectures were delivered relating to the Lothians, notes of which have been issued in the *Magazine*. The first, by Mr. Harry R. G. Inglis, F.R.S.G.S., F.S.A. (Scot.), was upon "The Early Maps of the Lothians" ; the second, by Professor Watson, upon "The Gael in the Lothians" ; the third, by Dr. Macdonald, on "The Roman in the Lothians," and the fourth, by Dr. Blaikie, on "Prince Charles in the Lothians."

The Committee would be glad if Members coming across old maps would secure them for the use of the Society.

### Finance.

The Annual Financial Statement here follows.

# ABSTRACT OF THE ACCOUNTS OF THE ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

*From 30th September* 1919 *to 30th September* 1920.

| | | | |
|---|---|---|---|
| **FUNDS AT 30TH SEPTEMBER 1919:—** | | | |
| £400 Dominion of Canada 3½ per cent. Registered Stock, 1930-50 (Deposited with Treasury), cost, | | £405 1 0 | |
| £1777, 7s. 7d.—5% War Stock 1929-47, cost, | | 1686 7 6 | |
| £100—5% Exchequer Bonds, due 1st April 1922, | | 100 0 0 | |
| | | £2191 8 6 | |
| **BALANCES** due by Banks:— | | | |
| On Account Current, | £245 5 5 | | |
| On Deposit Receipt, | 322 10 0 | | |
| On Do. do. (Glasgow Equipment Fund) | 78 6 11 | | |
| | | 646 2 4 | |
| | | £2837 10 10 | |
| *Less*—Subscriptions received in advance, | £16 16 0 | | |
| Sundry Creditors, | 178 3 4 | | |
| Due to Treasurer, | 126 6 6 | | |
| | | 321 5 10 | |
| | | £2516 5 0 | |
| **SUBSCRIPTIONS** from Ordinary Members, | £1249 10 0 | | |
| *Less*—Paid in Advance, | 13 13 0 | | |
| | £1235 17 0 | | |
| **SUBSCRIPTIONS** from Associate Members, less paid in advance, £3, 13s. 6d., | 186 7 6 | | |
| **DIPLOMA and LIFE MEMBERSHIP FEES,** | 127 5 0 | | |
| **DIVIDENDS and INTERESTS,** | 125 3 2 | | |
| **GOVERNMENT GRANT,** | 200 0 0 | | |
| **INCOME TAX** recovered for year ending 5th April 1920, | 4 16 0 | | |
| **ENTRANCE FEES** from new Members, | 87 3 0 | | |
| | | 1966 11 8 | |
| **INTEREST ON DEPOSIT RECEIPT** (Glasgow Equipment Fund), | | 3 4 10 | |
| **DONATIONS,** | | 10 0 0 | |
| **DONATION** from Glasgow Corporation to meet expense of special issue of Magazine, | | 200 0 0 | |
| | | £4696 1 6 | |

| | | | |
|---|---|---|---|
| **MAGAZINE**—Expenses of Publication, etc.:— | | | |
| Printing and other charges, | | £728 13 4½ | |
| Illustrations, | | 26 6 3 | |
| Maps, | | 38 11 0 | |
| | | £793 10 7½ | |
| *Less*—Magazines sold, | £66 8 9 | | |
| Advertising Receipts, | 107 2 10 | | |
| | | 173 11 7 | |
| | | £619 19 0½ | |
| **GENERAL PRINTING and STATIONERY,** | | 85 10 1 | |
| **BOOKS and other furnishings for Library,** | | 41 12 1 | |
| **EXPENSES** in connection with Lectures—*Less* Lecture Tickets sold, | | 257 9 4 | |
| **GLASGOW BRANCH,** Rent of Room, | | 15 0 0 | |
| **RENT OF COUNCIL ROOM,** Taxes, Gas, Repairs, Insurance, etc., | | 220 15 10 | |
| **SALARIES,** | | 574 5 0 | |
| **MISCELLANEOUS,** including General Expenses, and Postages, | | 238 15 0 | |
| **MEDALS,** | | 17 19 0 | |
| | | £2071 5 4½ | |
| **FUNDS AT 30TH SEPTEMBER 1920:—** | | | |
| £400 Dominion of Canada 3½ per cent. Registered Stock, 1930-50 (Deposited with Treasury), cost, | | £405 1 0 | |
| £1777, 7s. 7d.—5% War Stock, 1929-47, cost, | | 1686 7 6 | |
| £100—5% Exchequer Bonds, due 1st April 1922, | | 100 0 0 | |
| | | £2191 8 6 | |
| **BALANCES** due by Banks:— | | | |
| On Account Current, | £29 7 6 | | |
| On Deposit Receipt, | 137 10 0 | | |
| On do. do. (Glasg. Corporation Donation), | 200 0 0 | | |
| On do. do. (Glasg. Equipment Fund), | 81 11 9 | | |
| | | 448 9 3 | |
| Petty Cash on hand, | | 1 11 11½ | |
| Balance due by Aberdeen Treasurer | | 0 12 11 | |
| | | £2642 2 7½ | |
| *Less*—Subscriptions received in advance, | £13 13 0 | | |
| Associates paid in advance, | 3 13 6 | | |
| | | 17 6 6 | |
| | | 2624 16 1½ | |
| | | £4696 1 6 | |

*Edinburgh, 14th October* 1920.—I have examined the Accounts of the Royal Scottish Geographical Society for the year ended 30th September 1920, of which the above is an Abstract, and compared them with the Vouchers and Instructions thereof, and I find the whole to be correctly stated and sufficiently vouched and instructed.

P. C. ROBERTSON, M.A., C.A., Auditor.

## LIVINGSTONE MEDAL FUND.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FUNDS AT 30TH SEPTEMBER 1919:— | | | | | | | |
| £572, 12s. 5d.—5% War Stock 1929-47, cost, | | | | | £543 | 19 | 10 |
| Deposit Receipt Commercial Bank of Scotland, Limited, | | | | | 135 | 4 | 4 |
| Balance due by Treasurer, | | | | | 28 | 12 | 8 |
| | | | | | £707 | 16 | 10 |
| INCOME RECEIVED:— | | | | | | | |
| Interest on £572, 12s. 5d.—5% War Stock 1929-47 untaxed, | | | £28 | 12 | 8 | | |
| Bank Interest, | | | 3 | 11 | 9 | | |
| | | | | | | 32 | 4 5 |
| | | | | | £740 | 1 | 3 |

| | | | |
|---|---|---|---|
| FUNDS AT 30TH SEPTEMBER 1920:— | | | |
| £572, 12s. 5d.—5% War Stock 1929-47, cost, | £543 | 19 | 10 |
| Deposit Receipts Commercial Bank of Scotland, Ltd., | 196 | 1 | 5 |
| | £740 | 1 | 3 |

*Edinburgh*, 14*th October* 1920.—Examined and found correct.

P. C. ROBERTSON, M.A., C.A., Auditor.

LIBRARY
FEB 9 1921
UNIVERSITY OF TORONTO

G
7
S43
v.36-37

The Scottish geographical magazine

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY